



APRIL 1995, VOLUME III, NUMBER 4
OS/2 FOR CORPORATE AMERICA

Judge Sporkin *vs.* Microsoft

by Edwin Black

The De-Installation *of* Windows

When Judge Stanley Sporkin refused to rubber stamp the Justice Department's proposed anti-trust consent decree against Microsoft, saying: "I don't want to be a patsy," some wondered whether another AT&T-style breakup was in the offing.

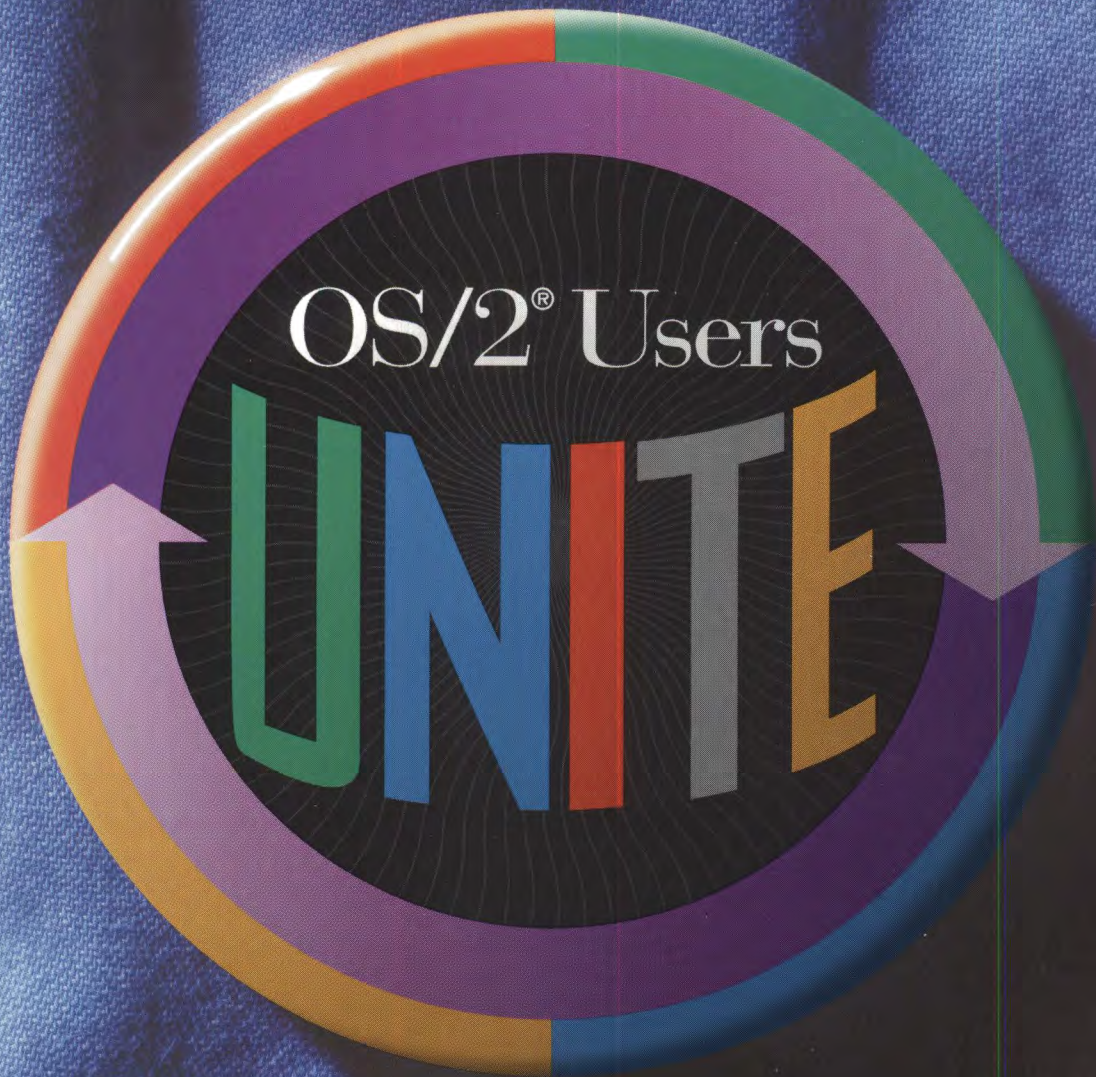
Judge Sporkin has the will and—some say—the power to order the breakup of the expanding Microsoft Empire and the de-installation of Windows throughout the American marketplace just as AT&T was broken up and its equipment and services de-installed years earlier.

It's legally possible. It's technically possible. If it happens it will change the future of computing and almost every 386 or better desktop computer.

The question is should Microsoft in fact be broken up and Windows de-installed to counter years of monopolistic practice. And if so, how and when might it happen? *(continued on page 16)*

\$3.95 U.S.
\$4.95 Canada

**YOU'VE ALWAYS
STUCK TOGETHER.**



NOW YOU CAN WORK TOGETHER.

It's revolutionary. And it's the network operating system designed specifically for OS/2 and OS/2 Warp. Finally, with LANtastic for OS/2, you can have a convenient, full-featured network without having to quit OS/2 to use it.

Work with anyone.

With our true 32-bit multitasking, multithreaded network, your OS/2 workgroup can have the convenience and speed of LANtastic even if you're already on an existing client/server network. Because LANtastic for OS/2 coexists with Novell® NetWare Requester™, OS/2 and IBM® LAN Server clients, and communicates with LAN Server, Windows NT™ and other SMB-based servers.

Work smart.

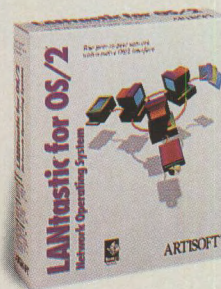
As always, the LANtastic name means easy-to-use software and affordable products—so networking within an OS/2 workgroup doesn't have to mean high installation and training costs.

Start working together.

If you're looking to unite with the rest of your OS/2 peers, call 1-800-809-2081. We'll give you the name of the nearest Artisoft Premier™ or Artisoft Advantage™ Partner so you can join the revolution. Because with the award-winning LANtastic for OS/2 on your side, who knows what your group can accomplish.

LANtastic®

How OS/2 networks.



For more information circle #256

NEW!

FILESTAR/2™

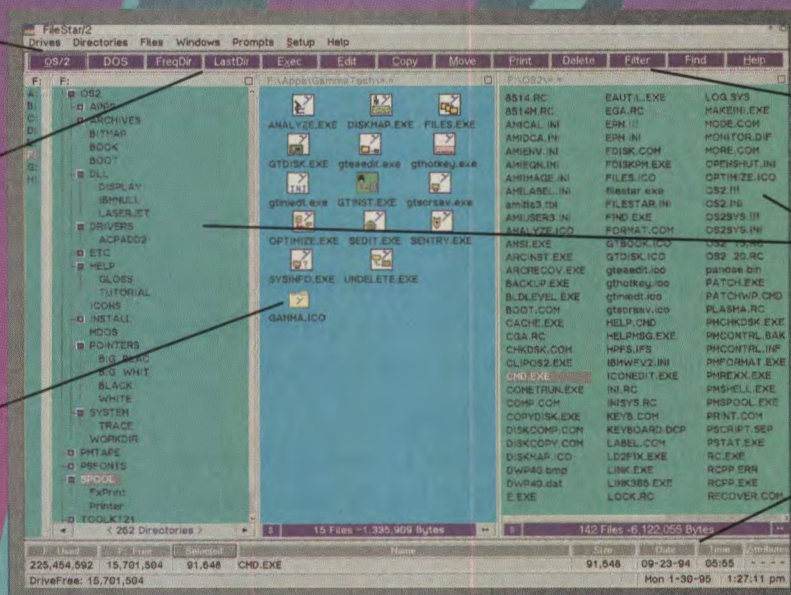
File Manager for OS/2

Exploring the vast galaxy of information requires tools to navigate disk space. FILESTAR/2 sets you in the cockpit, allowing you to chart your file system.

Operations can be performed from pull down menus, the button bar, hot keys or convenient pop-up menus.

Previously used directories are stored for quick access, or create your own customized frequent directories list.

Files can be displayed by name, icon, name and icon, or in details view.



Set up filters to display only the files you choose.

Drag and drop files between file windows, or drop files onto desktop objects.

Double-duty labels function as push buttons: click on the Attributes, Date or Time labels to pop-up a dialog box to modify the file timestamp or attributes.

- Query directories for the number of files and total space allocated.
- Continuously monitor the size of the swap file, amount of available memory, and free space.

- Perform file operations effortlessly.
- Compression utilities allow you to quickly compress/decompress files and directories and browse the contents.

(405) 947-8085



(405) 632-6537 FAX

SofTouch Systems, Inc., Workstation Division

1300 South Meridian, Suite 600, Oklahoma City, Oklahoma 73108

Specialists Since 1989

For more information circle #98



SPECIAL REPORT

16 The De-Installation of Windows • BY EDWIN BLACK

Judge Stanley Sporkin has the will and—some say—the power to order the breakup of the expanding Microsoft Empire. The question is should Microsoft be broken up and Windows de-installed?

PRODUCTS, REVIEWS & TECH TALK

31 HANDS ON Hard(ware) Decisions For Your Fax Network

BY STEVEN LEVENSON Matching appropriate hardware to required tasks is only one of the challenges in selecting a fax system for your network.

49 DOT EXE

Stan Miastkowski reviews LANtastic for OS/2 and Geoffrey Hollander takes a look at FaxWorks Pro.

57 MARKETLINE

Mind Path's IR55-FX for OS/2, the release of AM Version 4.4, and a price reduction from IBM's Internet access service.

61 CODE CACHE Programming With SOM • BY CHRISTINA LAU

In OS/2, the System Object Model becomes the basis for development of re-useable binary components available to other OS/2 objects.

69 THE I.S. NOTEBOOK Recovery Options • BY GORDON SCOTT

Tips on helping users to recover from mistakes when adding new devices and applications.

DEPARTMENTS & COLUMNS

9 INPUT Congratulations, criticisms, and observations from our readers.

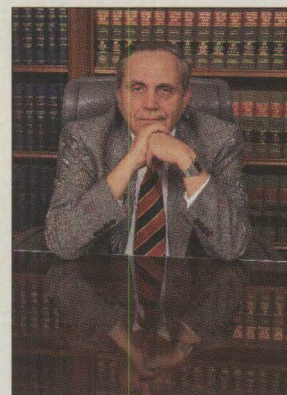
11 BYTES & PIECES Lotus's upgrade to SmartSuite for OS/2, OS/2 Warp with WIN-OS/2 hits the market, and OS/2 Warp Connect is slated to incorporate peer services.

15 THE WIZARD OF OS/2 Editor Bradley D. Klierer says it's time for IBM to establish a name for itself in the general purpose application market.

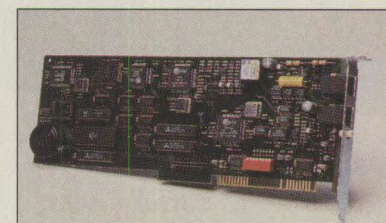
29 KOGAN'S KORNER Michael Kogan reexamines some of his more controversial topics from issues past.

73 BOOKSTAX Kevin McBride reviews *Lotus Notes Release 3 in the OS/2 Environment* by Tony Walsh, and *Lotus Notes Developers Guide*, by Eric Ray; and James Hansen reviews *OS/2 C++ Class Library: Power GUI Programming with CSet++*.

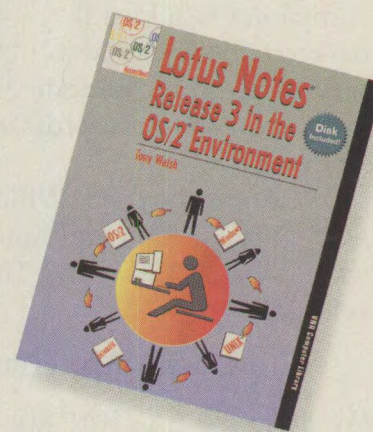
80 THE VIEW FROM CHAOS MANOR Jerry Pournelle mulls over Win95 and Internet access software.



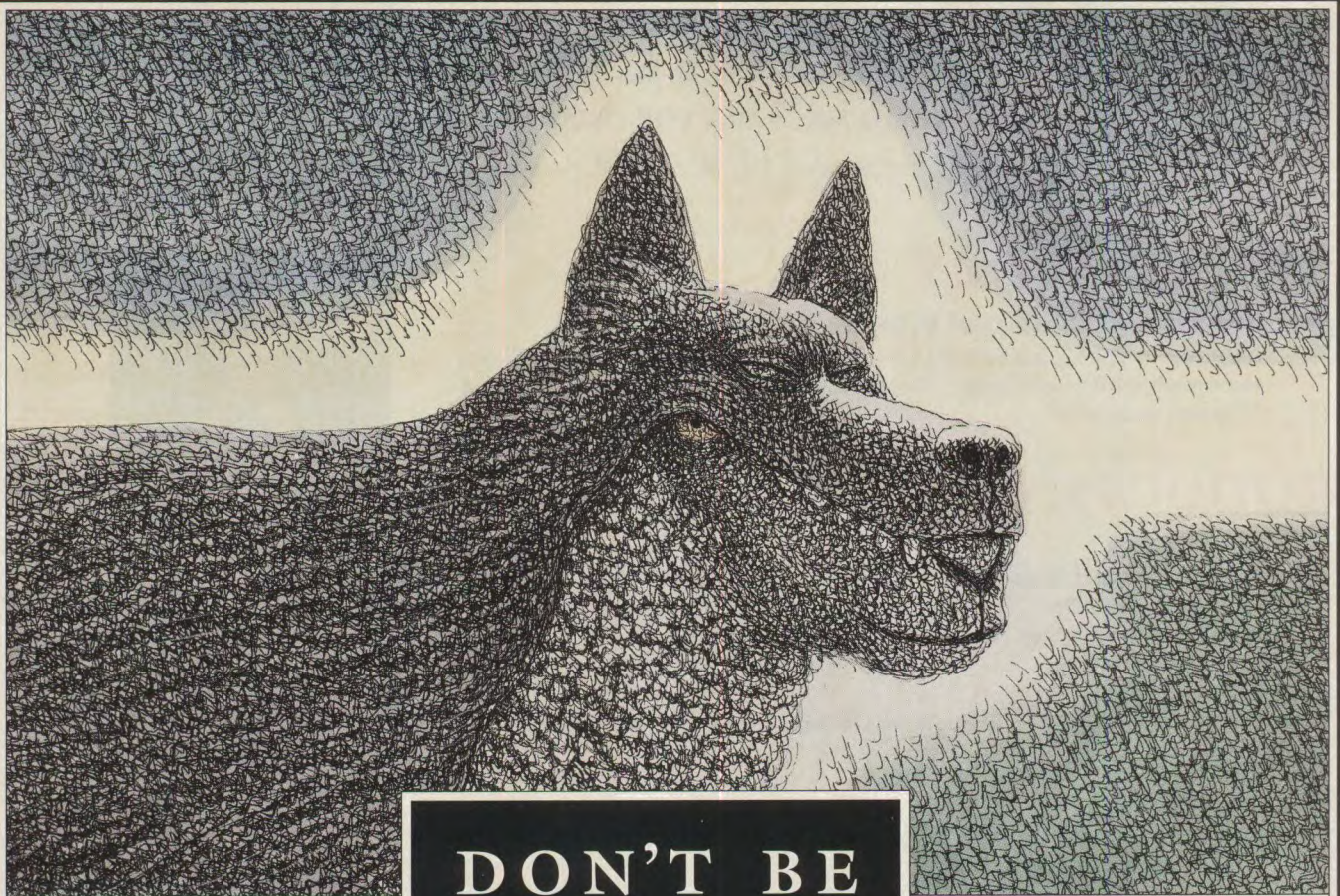
PAGE 16



PAGE 57



PAGE 73



DON'T BE FOOLED BY A FABLE

Posing as cutting edge just doesn't cut it anymore. But some PC-to-mainframe software companies would still have you believe that a sprinkling of 32-bit code in a 16-bit sea is the stuff legends are made of.

We don't think so. Which is why our new 3270/APPN communications software is 100% 32-bit and 100% object oriented.

The CM/2 Alternative

We designed EXTRA!® for OS/2® from scratch to be cutting edge, easy-to-use, next generation OS/2 technology. To users this means the look and feel of the IBM® OS/2



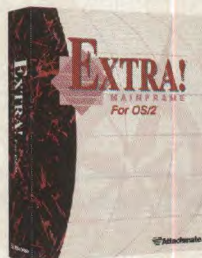
Workplace Shell and unparalleled multi-tasking performance. EXTRA! also supports CM/2 applications. To your organization this means preserving your investment, plus productivity you won't see anywhere else.

After all, EXTRA! for OS/2 is one of the innovative solutions from Attachmate®, the world leader in mainframe communications and connectivity.

Anything less is just a masquerade.

**For a free time-out copy of
EXTRA! for OS/2, call
1-800-426-6283 (x6000).**

International customers may call
USA 1-206-644-4010.



 **Attachmate**™

© 1995 Attachmate Corporation. Attachmate and EXTRA! are registered trademarks of Attachmate Corporation. IBM and OS/2 are registered trademarks of International Business Machines Corporation. 316909.0294

For more information circle #280

How to contact OS/2 Professional

Letters to our *Input* section are best sent by e-mail to one of the Input addresses below. Please indicate in your e-mail where you live and how we can reach you by phone. Letters can also be submitted by fax (to 301-770-7062) or mail (addressed to *Input, OS/2 Professional*, 172 Rollins Ave., Rockville, MD 20852). Letters should be signed, on letterhead, contain your telephone number and be no longer than two-double-spaced pages. All letters, by whatever means submitted, become the property of *OS/2 Professional* and will be edited for length, content, and clarity. We cannot reply individually to Input letters.

Business, general, or technical inquiries should be addressed to the appropriate department at *OS/2 Professional*, 172 Rollins Ave., Rockville, MD 20852.

E-mail addresses:

Input:
Internet: clauded@bix.com

Bradley D. Klierer:
Internet: bklierer@bix.com

All unsolicited materials are sent at the risk of the sender and *OS/2 Professional* assumes no responsibility for their receipt, storage, or return.

How to subscribe to OS/2 Professional

Subscriptions are \$25 in the United States, \$40 in Canada and Mexico, and \$65 airmail to other countries. Subscriptions may be paid by check or money order, Visa or MasterCard, or billing to a corporate address.

BY E-MAIL. For fastest service, subscription requests may be submitted electronically to the *OS/2 Professional* via the Internet: os2sub@bix.com

By phone: Call (612) 823-2657

By FAX. Fax subscription requests w/o cover sheet on a single page to (612) 823-0151. Your request must be on corporate letterhead and include billing and/or credit card information plus a signature and title. Address your request to "New Subscriptions."

By mail. Send check or money order, corporate billing, or credit card information to New Subscriptions, *OS/2 Professional*, 4604 Chicago Ave. South, Minneapolis, MN 55407.

Back issues: Back issues are \$7 each (except issues prior to August 1994 which are priced according to supply). Order back issues by sending check or money order and specifying the issue requested. We cannot accept corporate billing or credit card charges unless the back issue request is part of a new subscription.

Administrative, Editorial & Production Offices:

Edwin Black, Publisher and Editor-in-Chief, Claude d'Hermillon, Jr., Associate Editor, Margaret M. Dutcher, Associate Publisher, Alexandra T. McDonald, Advertising Traffic, 172 Rollins Ave., Rockville, MD 20852, Phone: (301) 770-3333, FAX: (301) 770-7062.

Editor's Office: Bradley D. Klierer, Editor, 4604 Chicago Ave. So., Minneapolis, MN 55407, Phone: (612) 823-2657, FAX: (612) 823-0151, Internet: bklierer@bix.com.

Advertising Sales: Richard B. Dubin, Advertising Director, Frank J. Salamone III and John Muller, Advertising Representatives, Pinnacle Place, Suite 205, Albany, NY 12203-3409, Phone: (518) 489-4034, FAX: (518) 489-4045.



Publisher and Editor-in-Chief

Editor

Contributing Editor

Managing Editor

Associate Editor

Assistant Editor

Editorial Assistants

Creative Director

Art Director

Assistant Art Director

Associate Publisher

Controller

Advertising Traffic

Administrative Assistant

Advertising Director

Advertising Representatives

Correspondents and Contributing Writers

Contributing Artists and Photographers

Production Manager

Production

Director of MIS

Circulation Manager

Circulation Assistant

Data Management

OS/2 Express Administrator

OS/2 Express

Legal Counsel

Edwin Black

Bradley D. Klierer

Michael Kogan

Susan Cooke Anastasi

Claude d'Hermillon, Jr.

S. James Willis

Sara Aase, M. Timothy Stewart

Elizabeth Black

Susan V. Levine

Kirsten M. Gafney

Margaret M. Dutcher

Catherine Honigsberg

Alexandra T. McDonald

Jodi Henning

Richard B. Dubin

Frank J. Salamone III, John Muller

Rick Cook, Todd Crowe,
Carey Gregory, Ken Mackin,
Gail Ostrow, Jerry Pournelle,
Gordon Scott, Herb Tyson

Leonard J. Eisenberg, Vickie Lewis,
Kevin Pedicord, Tom Reed,
Rick Stewart, Joanna Wiebe,
Arlene Williams

Brendan Connors

Dan Halberstein, Affiliated
Graphics, Hart Press

Christopher J. Wees

Christine Garwick-Foley

Jose Luis Guzman

DK Micro, MediaAutomation

Jan French

Dan Lake, Richard Schram,
Janet White

Dan Willard, Esq., Washington, D.C.
Thomas Crooks, Esq., Chicago
Arnold Kalman, Esq., Philadelphia
Richard Milian, Esq., Orlando

OS/2 Professional is published monthly, except for combined July-August and November-December issues, and mailed to qualified OS/2 users by International Features, Inc. *OS/2 Professional* is an independent publication not affiliated in any way with IBM. OS/2 is a registered trademark of IBM. All other trademarks belong to their respective companies.

OS/2 Professional accepts no responsibility for and will not return unsolicited manuscripts, photographs, artwork, software, data files, evaluation equipment, or computer diskettes.

© Copyright 1995, International Features, Inc.

Printed in the U.S.A.

TAKE OS/2 WARP BEYOND

THE LIMITS OF SPACE

WITH NEW STACKER 4.0

FOR OS/2 & DOS.



Once again, we've stretched the limits of data compression. Because with new Stacker® 4.0 for OS/2 & DOS, you'll now be able to store an average of 2.5 times as much data on your hard disk. And you can do it up to four times faster than with previous versions.

Stacker 4.0 is compatible with OS/2, Windows and DOS applications, and new OS/2 Warp. And if you're running DoubleSpace™, DriveSpace™ or SuperStor/DS, Stacker's conversion program is the easiest way to move to OS/2 without uncompressing your drive.

Stacker AutoSave™ helps put the squeeze on lost data by backing up and protecting vital file system

information. And the new Stacker Toolbox™ gives you instant access to your Stacker tools from your OS/2 desktop—just point and click.

Stacker 4.0 for OS/2 & DOS is now available for substantially less than previous versions and at special upgrade and cross-grade rates for current Stacker users. And we go to every extent to keep you happy with our 60-day, money-back guarantee.

Call **1-800-522-7822, ext. 8304** or contact your local dealer. Then get Stacker 4.0 for OS/2 & DOS, and give your hard drive more room to breathe.



NOTHING EXPANDS YOUR HARD DRIVE LIKE NEW STACKER 4.0 FOR OS/2 & DOS.



Outside of the U.S. call 1-619-794-4333 or fax 1-619-794-4575 for more information.

© 1995, Stac Electronics. Stac and Stacker are registered trademarks, and Stacker Toolbox and Stacker AutoSave are trademarks of Stac. OS/2 is a registered trademark of IBM. MS-DOS, DoubleSpace, DriveSpace and Windows are trademarks of Microsoft. All other product names are trademarks of their respective owners. Novell Yes: Developer tested only. Novell makes no warranties with respect to this product. Actual compression results may vary.

For more information circle #54

Don't Confuse the Market

BY EDWIN BLACK

The campaign to sell vanilla Warp was a success in spite of itself. In spite of silly advertising, lousy timing, and crappy luck, all glued together with the arrogance that is uniquely PSP, Warp without Windows has sold about a million copies thus far. That figure must factor in the 200,000 Australian preloads that haven't been booted yet, and a whole bunch of returns which IBM has yet to count. While the numbers should have been dramatically higher given the extraordinary resources IBM committed, Big Blue still has a lot to be proud of.

For one thing, a million copies in two months ain't hay. But more important, the product works wonders. I'm writing this publisher's memo on an old and meager-resourced 4 MB Panasonic notebook that has always been considered a DOS relic. But under Warp, this notebook has new life as a multitasking computer.

Now no one knows for sure who purchased those first million copies. Our Reader Poll on page 79 will add some insight. But if I had to, I'd guess these numbers: 25 percent preloaded, 25 percent new purchaser, 25 percent existing user Warping additional Windows workstations, and 25 percent Warp aficionados who wouldn't wait for Fullpack or an upgrade from Ferengi.

By now, IBM has figured out that it made the computer marketing error of the decade positioning Warp as an ambiguous toy for way cool dudes. On TV, the pimply people have been replaced with the Italian Nuns. Big Blue has realized its strength is currently in the corporate installed base. Planners expect upwards of 70 percent of the 2.1 base to upgrade. That translates to between three and five million sales—depending upon how much truth serum you had with your orange juice this morning.

Now Big Blue must not make another mistake and confuse the corporate market with a gaggle of new Warp versions—what gee whiz Wally Casey of PSP marketing calls a “family” of Warp products. We don't need a whole family of Warps. One strong

father figure product with a clear identity would suffice.

Unlike the mad rush for vanilla Warp, which has peaked now that early adoption and pent-up demand has passed, the migration from 2.1 to the Fullpack will yield a solid and steady sales pattern over many months. Remember, corporations will not convert all their workstations immediately. First the company's evangelists and power users will come on line. IS managers will want to understand the slight differences between Warp and configura-

tions they have worked hard to perfect over the past year. Conflicts with add-ons will have to be resolved. Desktops will have to be rebuilt. That won't happen overnight. Even in our small company, the IS department is not relishing the process of converting a few dozen computers at *OS/2 Professional*.

In October readers predicted they would upgrade within 90 days. By December, more than a third said they would not Warp until summer 1995. Based upon that, as well as the reports I receive from readers and *OS/2 Express*, I'm guessing the main wave of Fullpack

purchasing will take all spring and summer.

But now we have Warp Connect coming within just a month of Warp Fullpack. Many corporate users will simply skip the Fullpack and opt for Connect, even those who may not yet need the peer-to-peer connectivity. We at *OS/2 Professional* will. More Warp variants are on their way. These variants also complicate retail stocking and selling, which makes migration down the commercial pyramid more difficult. Can these versions be combined?

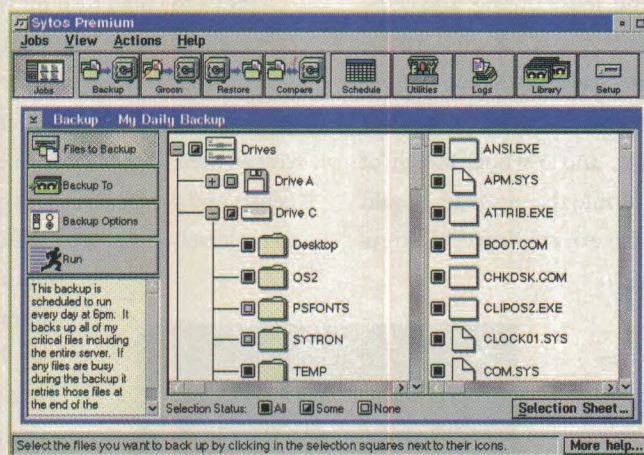
Warp is not PSP job relief. It is the IBM bridge builder. Warp should be established as a steady and understandable OS product that ensures that corporate America and IBM will continue their technology partnership.

Next year it could be different. But for now, keep it simple, sir. ♦

Edwin Black



WE'VE JUST CHANGED THE FACE OF OS/2 BACKUP.

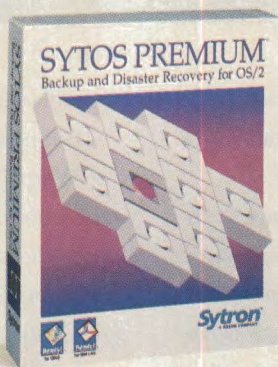


The standard in OS/2® backup just got a facelift. Introducing Sytos Premium™ Backup and Disaster Recovery for OS/2 from Sytron. It's the same reliable Sytos Plus you know and love, and a lot more.

For starters, we gave it a bold new look. Featuring easier access to its powerful features. We added emergency disaster recovery, so you can recover your entire system if need be. Then we bolted on a turbo-charger, so you can now recover OS/2 from the last full backup in less than 10 minutes. Plus, there's a graphical, multiple

event scheduler so you can schedule automated jobs to run whenever you like. And the broadest support for industry standard QIC and DAT tape drives. There's even optional built-in autoloader support. The result? Simply the fastest, easiest to use and most flexible backup and disaster recovery solution for LAN Server networks.

So contact your favorite software dealer, or call **1-800-877-0016** for more information. Because OS/2 backup and recovery has never looked this good.



Sytron®

OS/2 EXPRESS
800-OS2-KWIK

EGGHEAD
800-EGGHEAD

INDELIBLE BLUE
800-776-8284

PC CONNECTION
800-800-0005

IBM DIRECT
800-IBM-CALL
(Media SYTR01)

© 1994, Sytron Corporation, a subsidiary of Rexon, Inc. Sytron is a registered trademark and Sytos Premium is a trademark of Sytron Corporation. IBM and OS/2 are registered trademarks of International Business Machines Corporation. All other product names and logos are trademarks of their respective owners.





Comments, criticisms, and observations

Analysis analysis

I was pleased to read Edwin Black's article, *What Went Wrong with the Warp Campaign* [Analysis, February] and agree that it is a mistake to market Warp in direct competition with Windows, not just because Windows has an overwhelming lead, but also because they are fundamentally different products.

Likewise, I agree with your statement: "the correct market strategy for Warp is to migrate down the corporate user pyramid." The niche of the solid, corporate-development platform is where OS/2 already has its best foothold, and one to which it is well suited.

However, I cannot agree that Warp should be positioned as a Windows enhancer. The tests show that Windows apps run about twice as slow under Warp as under native Windows. (They run even slower under Windows NT.) They still crash, and getting them to work under Warp introduces a new set of configuration hassles. Then, on top of all that, you've got to run Warp itself. So if all you want is to run Windows apps, are you really better off introducing Warp to the equation? Maybe so if you're a developer or someone else with peculiar needs, but not otherwise.

Rather than present Warp as a Windows enhancer, why not present it as a sophisticated power OS for the user who is fed up with the rinky-dink world of DOS/Windows. There are many, many users who are itching for an OS that transcends these limitations. Warp is a natural for this market because the only competition is Windows NT, which is too fat and slow for anything approximating a typical PC in today's world.

David L. Potts
Chicago, Illinois

Edwin Black's assessment of the misguided Warp campaign was right

on target. His most significant error, however, was his analysis of the print and television advertising. How an agency as distinguished as Ogilvy & Mather could misinterpret the "Warp concept" is beyond my comprehension. I could use the same concept and "feel" as the TV commercials and come up with a better ad in half an hour.

Rich Ellis
via CompuServe

I would like to add one other observation to Edwin Black's analysis of the abortive Warp campaign. I have been a loyal OS/2 user since version 1.3. The thing I find the most disconcerting is the multiple levels of the product that are supposedly available.

In speaking with the tech group at Boca Raton, who continue to be one of the good things about OS/2, I discovered that IBM has not even shared with them the details of the differences between the various versions. Those of us with established relationships with the Boca Raton group are not going to call some salesman when we have a question. So why don't Austin, etc., keep their own best people informed?

If it weren't such a fine product, I would have given up on the Neanderthals at Big Blue a long time ago.

Fred Brattain
via CompuServe

I am beginning to get sick of the flip-flop you and other OS/2-based magazines have been going through for the past two years.

Prior to an updated release, all we read is how "this is going to be the one!" Then, two months later we read "IBM Blue It Again!" If you guys have the answers and truly care about OS/2, call Gerstner and tell him, "Let us do your next campaign." Stop wasting our time and raising our hopes with articles that make it appear OS/2 will finally be "everywhere" and then the next month when it's "nowhere" tell us about what

IBM did wrong. Your waffle articles do not help any.

Sven L.L. Rafferty
via the Internet

We have offered to do IBM's next campaign; they weren't impressed.—the Editors.

C'mon Jerry

After reading *The Devil's in the Details* [The View from Chaos Manor, February], I was astounded to discover that Jerry Pournelle could not get Warp loaded on his IBM Microchannel computer. I thought this man knew just about everything about computers so I was dismayed to understand his problem. Why? Because I have an IBM model 8570-A21, a Microchannel machine, on which I have installed IBM's DOS 6.3, Windows 3.1, Microsoft Word for Windows 2.0, and some other stuff.

A few weeks ago, I got my copy of OS/2 Warp and in just a few minutes had it installed along with the IBM Works package and the other utilities that came with it. No problems of any kind. What in the world is Jerry doing wrong?

Robert A. Wilson
Sante Fe, New Mexico

Jerry Pournelle claims that Warp will not install on an IBM PS/2 Model 77 and that Warp does not support Microchannel. I found these claims to be very amusing since this letter is being composed on (surprise...) an original IBM PS/2 model 77 which has Warp and LAN Server 4.0 installed on it. I had no problem installing Warp on my 77 with CD-ROM, Ethernet, Sound Blaster and two SCSI cards.

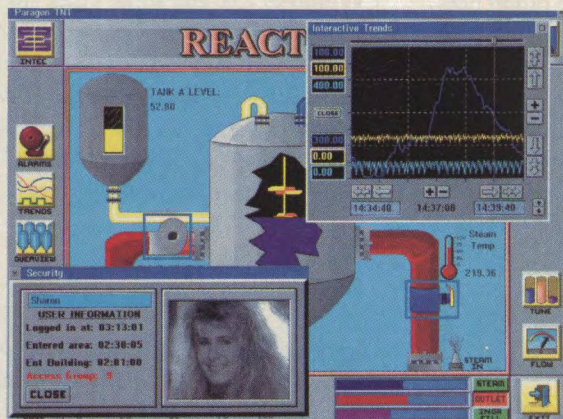
I can believe Mr. Pournelle had installation problems, but there is a difference between claiming this and stating that Warp does not support Microchannel.

Mr. Pournelle, before you whine,
continued on page 79

Now Available
for OS/2 Warp
Native 32-Bit



**Wouldn't it be great
if one tool could do it all?**



**We thought so.
The MMI to SCADA
to CIM Solution.**



Real 32-Bit True Client/Server. Our free disk tells the story.

Intec Controls 55 West Street Walpole, MA 02081 Tel: 508-660-1221 Fax: 508-660-2374
Intec Controls Ltd. P.O. Box 33 Chichester, W. Sussex England PO20 7DW Tel: 0243-532763 Fax: 0243-530672

For more information circle #192

Don't Settle for Just MMI

Some software products provide a good operator interface, but leave you searching for answers when you need more. Paragon TNT is the single solution that handles all your applications: from basic MMI, to supervisory and direct control, to complex plant-wide CIM. With one tool for all your jobs, operator training is reduced, system maintenance is simplified, and integration nightmares are eliminated.

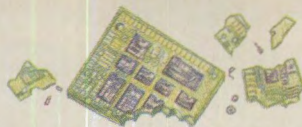
The Scalable Solution

Paragon TNT is an exact fit for your application, no matter how simple or complex. Each of Paragon TNT's clients and servers can operate independently, yet they work together in any combination to form a fully integrated system – either on a single station or distributed across a network.

For Today, for the Future

Can your automation software easily adapt to new requirements? With Paragon TNT, you won't run out of gas. Adding new capabilities like supervisory control or relational database support is as simple as enabling additional clients and servers. TNT even lets you migrate to the newest 32-bit operating systems, without having to scrap your existing application.





BYTES & PIECES

News and trivialities, important and obscure

Lotus moves toward parity

This is the year that Lotus Development Corp. has been pointing to as the year its Windows and OS/2 applications finally attain parity. The year in which, if not dollar for dollar, then at least development hour for development hour, OS/2 is taken seriously.

Toward that end, Lotus was, at press time, gearing up to ship a maintenance upgrade to SmartSuite for OS/2. And while the new release, version 2.0, is not a giant leap forward, it is a step in the right direction. Aside from minor fixes to Ami Pro and cc:Mail, the upgrade aims at enhancing performance with the inclusion of Value Pack featuring a customizable, object-based icon bar that lets users manage their desktops from the Workplace Shell.

Meanwhile, Lotus continues to work toward what it refers to as "convergence," a common code base from which one team can jointly develop both Windows and OS/2 applications. And while Lotus adamantly denies it is waiting for Win95 to ship, sources privately say that an OS/2 SmartSuite based on common 32-bit code may not be ready until early '96.

At the same time, Lotus is gearing up to release Ami Pro for OS/2 version 4.0, with beta testing scheduled to begin in early summer. "This is the parity release," says Ami Pro Product Manager Doug Benson. "With the exception of OLE, I know of no other features that the Windows product will have that this one won't have."

One Warp, two Warp, red Warp, blue Warp

With shipping copies of OS/2 Warp with WIN-OS/2 officially in hand, OS/2 Professional set to running some initial tests on the newest member of

the Warp family. Beside the inclusion of IBM's modified version of Windows, very little differentiates the Fullpack from its older sibling. Even the boxes look the same. Other than

the blue, rather than red spine, the main difference is some small print that reads either, "Includes

DOS and Windows Application Support," or "Upgrade Edition for Users of OS/2 Version 2.1." The latter is a bit misleading for some users who attempted to upgrade OS/2 2.1 for Windows, which requires the more expensive, non-upgrade version.

IBM has used the new version to make further cosmetic improvements to the software, too. Blue Warp better handles

conversion of existing CONFIG.SYS and AUTOEXEC.BAT files. In two cases, the blue version rearranged LAN-related statements in CONFIG.SYS, and the affected systems (which also had Communications Manager/2 installed) would not connect to the network until we put the statements in the proper sequence. Other LAN Server connected systems without CM/2 were unaffected by the upgrade. The only significant change to the BonusPak is the gold version of the Internet WebExplorer (users with the old version can upgrade automatically through the Retrieve Software Updates icon in the Internet Access Kit).

The best addition comes at the end of the install process. Prior to rebooting, the Install program displays the old and new CONFIG.SYS files side by side. You may edit the new file or

copy blocks of text from the old file to the new. Most users won't need this feature, but those who do will be quite pleased. It should also reassure users concerned about changes to their systems.

On one test system with Microsoft Windows installed, Warp failed to migrate two TurboTax DLL files from the \WINDOWS\SYSTEM directory to the \OS2\MDOS\WINOS2\SYSTEM directory, but otherwise we found no problems with Windows applications.

Except for one case, performance, features, and quirks were nearly identical between the blue and red versions of Warp. Program loading, file loading, and computations ran neck and neck.

Scrolling a long Word for Windows document, however, was about 20 percent slower under the Fullpack (blue) version of Warp.

As with version 2.1, we continue to recommend that users currently running Microsoft Windows (whether through OS/2 2.1 for Windows or DOS) install the red version. Current users of the Fullpack version of OS/2 2.1 (Borg) should install the blue version.

Out of the BLUE

It's official: IBM's LAN Client edition, dubbed "OS/2 Warp Connect," will incorporate peer services. IBM communications staff outlined features of the product for the media in a late-February conference call. Through its peer connection, users of Warp Peer, Windows for Workgroup, Lantastic 6.0, LAN Server and Microsoft NT will be able to share each others' resources. Novell requesters, however, cannot see devices defined through Warp's peer services. Peer users will be able to share files and printers locally

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

Warp

BYTES & PIECES

and remotely, through parallel or serial ports, with no logical limits to the number of peer stations or requesters that may connect.

OS/2 Warp Connect, available exclusively on CD-ROM, will ship with full LAN Distance Remote, TCP/IP support (including network-enabled features in the BonusPak's Internet Access Kit) and an enhanced version of Lotus Notes Express. Users may choose a peer connection, LAN Server Requester, or NetWare Requester for OS/2. Any combination of protocols for NetWare, LAN Server, or the Internet can run concurrently. An additional CD-ROM, tentatively called the ExtendPak, targets larger corporations with SNA features through a CM/2 APPC Client, AnyNet/2 support, System Performance Monitor, and a Mobile

file sync, which allows disconnected users to continue using files as if they were still on the network. After reconnecting, the files on the remote system automatically resynchronize with the network.

Wally Casey, director of marketing for PSP, said that IBM has pegged Fortune 500 companies, small businesses, and workgroups within larger corporations as its best markets for OS/2 Warp Connect.

In limited beta testing since Dec. 28, OS/2 Warp Connect was released March 14 for full beta testing. IBM is targeting the release date for the end of this month or early May. Although price estimates were unavailable at press time, current Warp users will have an option to upgrade at a discount. The Fullpack version will ship first with OS/2 Warp Connect

without WIN-OS/2 to follow a few weeks later.

OS/2 advertising via Microsoft

A curiosity of IBM's requirements for soliciting advertising in 1995 is a long, detailed instruction sheet and diskette mailed by its agency Ogilvy & Mather to all prospective media outlets. The instructions require publication profiles and other information to be input into Microsoft Excel and mailed back as a condition of consideration. O&M chose Excel after polling leading publishers to identify the most commonly used software available for the process. *OS/2 Professional* does not own a copy of any Windows software, and declines to purchase any. ♦

Move Up to the Next Generation!

with

TechBridge Builder®

Create applications by customizing visual component templates supplied by TechBridge.

Link components to external databases by dragging and dropping onto a database class.

Click to generate a quick form, or customize your own. Let our framework worry about SQL, CUA, dialogs, objects, containers, transactions, queries, business graphs, etc. You concentrate on delivering a product that satisfies your users' needs.

Ask about our free demo disk.

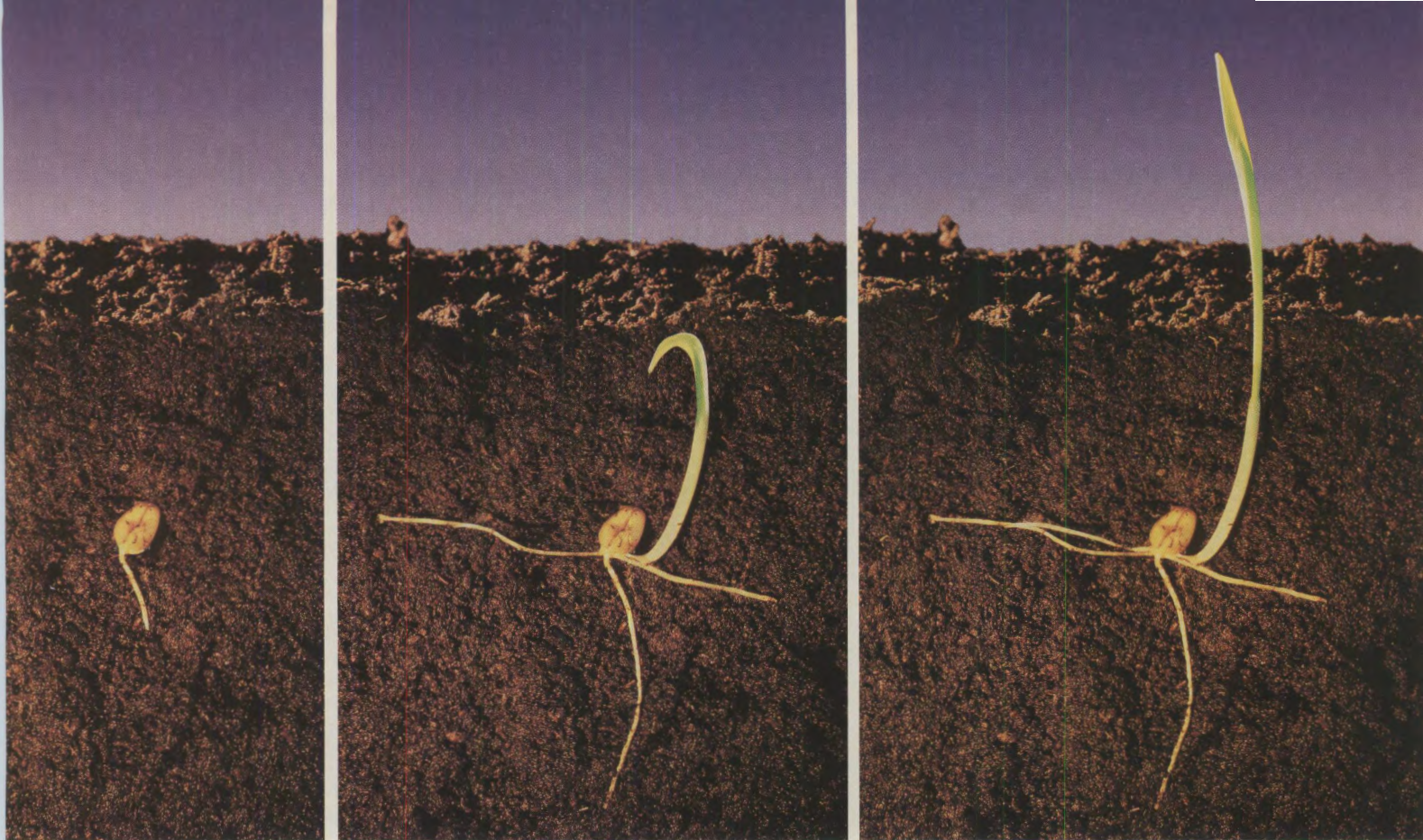
Call 1 (800) 463-8998



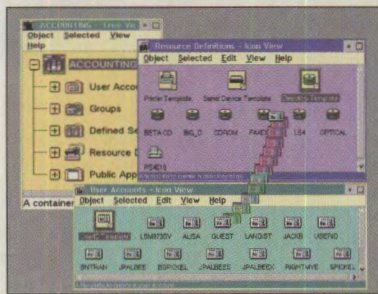
TechBridge Technology Corp.

5001 Yonge St., Suite 1301, North York, Ontario, Canada M2N 6P6. Phone: (416) 222-8998. Fax: (416) 222-0168.

TechBridge, TechBridge Technology, and TechBridge Builder are registered trademarks of TechBridge Technology Corp. All other product names are trademarks of their respective companies.



Will your network grow into a majestic oak, or raging crabgrass?



*"IBM takes an even stronger graphical approach to LAN administration than... Windows NT™ Advanced Server."
—InfoWorld
August 22, 1994*

*"Early users attested to its speed, robustness and ease of administration."
—Network World
September 12, 1994*



Award-winning LAN Server 4.0

It all depends on your software. IBM® LAN Server 4.0 will actually make your network so manageable you actually look forward to dealing with it.

How did we transform a task that at best was considered a chore? For a start, we made LAN Server 4.0 much easier to install than other network operating systems. And its powerful new drag-and-drop administration makes adding new users a walk in the park.

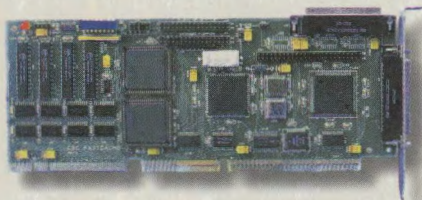
For more information on how the new LAN Server 4.0 can help your network grow big and strong, call your local reseller or 1 800 IBM-CALL. In Canada, call 1 800 565-SW4U, ext. 298.



ACCELERATE YOUR WARP SYSTEMS

- Obtain performance and reliability with FastCache™ SCSI peripherals specifically optimized for OS/2™.
- Add SCSI-II and wide SCSI-III features today. Exploit the advantages of 32-bit HPFS performance.
- Connect up to 15 Hard, CD-ROM, DAT, or optical drives with ease.
- Access the full range of powerful new SCSI peripherals now!

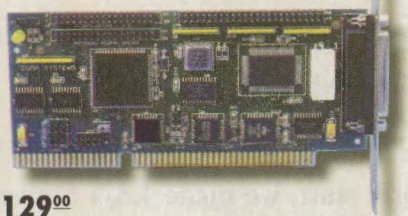
VESA SCSI-III POWER



\$295⁰⁰

Use the absolutely fastest SCSI controller available for OS/2™. Enjoy wide SCSI-III compatibility and the ability to share the bus with standard SCSI-II drives. A full 32 bit 128K cache memory transfers data with a blazing 25ns access time. You'll have full caching performance and reliability today. Take advantage of performance that exceeds any available disk drive. SCSI bus transfer rates of up to 26MB/sec and Hyper SCSI™ are supported. Lightning fast, software upgradable FLASH BIOS and OS/2 driver are included. Call today and get full-on SCSI-III features in a VESA card that outperforms PCI!

SCSI-II DONE RIGHT



\$129⁰⁰

Get total compatibility and complete SCSI-II performance at a great price. Insert the ISA FastCache in any 16 bit slot. A 32 byte on-board "hyper-FIFO" accelerates transfers and lets this card work where others fail. A full SCSI-II 10MB/sec bus transfer rate means top performance, without compatibility headaches. Order now and receive lightning fast, software upgradable FLASH BIOS. OS/2™, ASPI™, and Novell™ drivers are included.

PCMCI A CONNECTIVITY



\$129⁰⁰

The FastCache PCMCI A SCSI card is currently the only reliable way to get full OS/2 performance on your notebook. Slip this type II card into your notebook for instant OS/2 performance. Install WARP from a CD-ROM with ease. Get the latest high performance SCSI-II features including scatter/gather, disconnect/reconnect and advanced error correction. Why wait for driver availability? Order now and get the fastest PCMCI A SCSI card made!



CORPORATE SYSTEMS CENTER

Upgrade your systems with ease and save with factory direct pricing. Order with confidence from the nation's premier supplier of corporate data storage peripherals. CSC has the right SCSI solution for your OS/2 systems, at the right price. Your satisfaction is always guaranteed.

Call on us today for system upgrade assistance.

NO RISK TRIAL

Try any hardware for 15 days. You must be satisfied or we'll refund the price of the item. Free lifetime tech support is included with any hardware purchase. Corporate and dealer inquiries are invited. Call today - you won't be disappointed.

WIDE SCSI-III PCI FOR WORKSTATIONS



\$295⁰⁰

The ultimate data transfer pipeline for PCI file servers and workstations. This card is optimized for top performance controlling up to 15 wide SCSI-II or SCSI-III hard disks. This board is software upgradable as SCSI-III specifications advance. Discover the first choice of major corporations and government for file servers and workstations.

FASTCACHE HARD DRIVES



FAST SCSI-II

**CERTIFIED
4000MB
COMPLIANT**

**ONE YEAR
BRAND NEW
WARRANTY**

Chosen for top reliability and performance. All drives include a 512K cache buffer. Both internal and external units are available. Compare prices, compare performance. Call today and try one at no risk!

2000MB-\$549
3500MB-\$949
4000MB-\$1095



**CORPORATE
SYSTEMS
CENTER**

1294 Hammerwood Ave.
Sunnyvale, CA 94089
(408) 541-8449
Fax (408) 541-8459

© 1995 Corporate Systems Center. CSC FastCache is a trademark of Corporate Systems Center. All other trademarks are the property of their respective owners.

For more information, circle #287

Committing to Warp

BY BRADLEY D. KLIEWER

To hear PSP presentations, you would think IBM plans a bold strategy to capture the SOHO (Small Office/Home Office) market: a strategy that hinges on Warp. While Warp certainly has the features to attract SOHO users, we remain skeptical regarding installation and preloading issues that are only now being resolved with the shipment of the Warp Fullpack. Regardless, IBM faces other technological problems when promoting OS/2 as the next operating system for the masses: lack of internally developed native applications or a migration path to the high end.

Outside the BonusPak, IBM has no spreadsheet, word processor, or user-oriented database. In the latter case, IBM markets DB2/2 as a native app. But DB2/2 clearly stands as a corporate, not a SOHO solution. In other areas IBM markets excellent native products such as CSet++, VisualAge, and LAN Server. But these are hardly products that form the bastion of the SOHO market.

This stands in stark contrast to Microsoft, which not only develops software for operating systems, development tools, and general applications, but dominates all three arenas. This gives Microsoft considerable market leverage and income when it updates the operating system. If Win95 adds a significant new feature not supported by earlier applications (for example, long file names), Microsoft can make simple applications upgrades to bring older applications up to date. Thus, with a fix (for a small fee, of course) users gain a significant new feature and Microsoft gains significant profits across its product lines.

Moreover, Microsoft provides a convenient migration path for business growth. If you start a small business, you can purchase Microsoft Works for your routine work. When you outgrow Works you can move up to Office. But if you start with IBM Works in the BonusPak, where do you turn for more power in a native application? Sure, you can move up to SmartSuite or individual applications such as DeScribe, Clearlook, and Mesa, but then you must relearn the base menus and features.

While DOS and Windows compatibility may bring the SOHO market to Warp, IBM needs a way to retain their commitment. The Internet Access Kit is a good first step, but it has yet to prove itself as a core application. So long as users remain loyal to DOS and Windows apps for their everyday work, they will have an option to switch back to Windows. IBM no longer has time to start development from scratch. Short of following Microsoft tactics (acquiring existing products or companies) or convincing Microsoft to hold to its original promise to release native OS/2 applications once the installed base reached two million users, IBM needs to further empower the existing application developers.

IBM already has the technology to capture and retain the corporate market. IBM established staying power by providing key applications such as CM/2, LAN Server, and DB2/2. Corporate problems with DOS/Windows began with an awkward memory management. MIS personnel wrangled with conflicts between apps using Extended, Enhanced, and HMS memory modes, drivers for network adapters and host communications adapters. OS/2's tailored DOS sessions put an end to these users' configure/reboot cycles while adding significant features in native programs.

The latest announced details of Warp Connect, formerly known as Warp LAN Client, show that IBM is ready for serious expansion within the corporate world. The "integrating platform" continues to lower barriers between competing network protocols: resources are browsable by NT systems, shareable by LANtastic systems, and accessible from NetWare servers. While Microsoft attempts to force the market into "Windows everywhere," IBM continues to bring everything else home to OS/2 in an open environment.

It's time, however, for IBM to establish a name for itself in the general purpose application market: not in an effort to usurp the market leader but to further solidify the corporate market. It's a move that will require vision, leadership, and an unprecedented level of cooperation with the ISVs. ♦



*When Judge Stanley Sporkin refused to
rubber stamp the Justice Department's proposed
anti-trust consent decree against Microsoft,
saying: "I don't want to be a patsy," some
wondered whether another AT&T-style
breakup was in the offing.
Judge Sporkin has the will and—some say—
the power to order the breakup of the
expanding Microsoft Empire and the
de-installation of Windows throughout the
American marketplace just as AT&T
was broken up and its equipment and services
de-installed years earlier.
It's legally possible. It's technically possible.
If it happens it will change the future
of computing and almost every 386
or better desktop computer.
The question is should Microsoft in fact
be broken up and Windows de-installed to
counter years of monopolistic practices? And if so,
how and when might it happen?*

The

The Microsoft monopoly cries out for government action to protect the economic well-being of the United States, as court documents in the Justice Department's proposed consent decree have asserted. But just how vital the dismantling of the Microsoft Empire is, and just how OS/2 might figure in the process is lost in the emotional turmoil of the moment. Moreover, if Judge Sporkin does move the Justice Department to repeat the AT&T breakup, the process will reach right into your desktops.

Key to understanding what has happened in the past eight or so years is that through monopolistic and exclusionary practices, Microsoft has put its Windows operating environment into some 80 percent of the nation's computers. As a result of that market dominance, Microsoft can effect horizontal control over the independent applications dependent on Windows. By manipulating and controlling access to its code, Microsoft can, in effect, decide who will and will not compete in the computer market. Additional mega expansion plans, such as the acquisition of Intuit and its Quicken family of bookkeeping and tax preparation products, the launching of the Microsoft Network, and recent deals with Visa International and other financial entities, could make Bill Gates and Microsoft the tollbooth for the bulk of America's electronic informational and financial transactions.

Like AT&T

America has witnessed unbridled horizontal control in the past. When Hollywood studios owned the movie theaters, when TV

De-Installation of Windows

Judge Sporkin vs. Microsoft

by Edwin Black

networks owned the TV production companies, and when major railroads could fix rates that denied market access to farmers and meat packers, they were all viewed as anti-competitive and against public policy. The government took action.

But the breakup of AT&T—which owned the long distance and local service as well as the phone equipment—is the most dramatic recent application of America's anti-trust laws. And it is the one most strikingly similar to the anti-competitive dominance of Microsoft in the computer market today.

To refresh your collective memories, AT&T was forced to divest—that is, compelled to break up into a long distance company and the so-called Baby Bells. In effect, the government de-installed AT&T's monopoly from every household and office in the nation. Every telephone user was given the choice of retaining AT&T or opting for a long distance competitor, such as Sprint or MCI. They were also given the choice of leasing or replacing AT&T's phone equipment. As part of the process, every home and office eventually received a clip-accessed, universal interface to replace the hard-wired Ma Bell jacks. Today virtually every phone and wall socket in the nation instantly connects via these inexpensive modular jacks.

It has taken years to undo the market interference of AT&T. And in many ways, the process is still on-going. But it changed American telecommunications forever. The judge behind the implementation of AT&T's dismemberment and de-installation was Federal Judge Harold Greene, whose chambers is just down the corridor from Judge Sporkin's. In his landmark set of opin-

ions, Judge Greene declared: "It is antithetical to our political and economic system for this key industry [telecommunications] to be within the control of one company."

Precedent seekers might be quick to justify Judge Sporkin by Judge Greene's actions. Alas, much of the AT&T case does support Judge Sporkin, much does not, and much is simply up for grabs.

Judge Greene and Judge Sporkin

Many portray Judge Greene as the fearless arbiter who personally dismantled the AT&T Empire. He did. But not by himself. Essentially, the independent-minded judge prodded and enforced as the Justice Department revised and sharpened its consent decree. In many other instances, the stubborn judge just refused to allow the accord to proceed until he saw changes he felt were needed for the public interest. A Justice Department staff attorney close to the original case told *OS/2 Professional*: "The judge said 'this is how we're gonna do it.' And that's the way it was done."

Precedent citers suggest Judge Greene acted under the same Tunney Act scenario that Judge Sporkin is using to block the proposed Microsoft decree. That's not quite true. The differences are vital.

To safeguard against a Justice Department that is too timid, too untrustworthy, or too unwilling to secure strong consent decrees, the Tunney Act requires a judge to gather sufficient information to reject or approve a settlement based on the public interest. The legislation arose during the post-Watergate-era

A PROGRAMMING TOOL THAT WON'T SCREW YOUR HEAD UP



Splat! There goes another masterpiece. It was going to be a work of art, a monument to elegance and flexibility. It was going to be your finest creation. What happened? It got beaten into unrecognisable garbage by some clumsy GUI builder. And the controls ended up as subtle as a flying sledgehammer thanks to a resource editor with an attitude.

It's enough to turn a decent living programmer into a serial killer. Somebody out there had better come up with a solution.

We just did. It's called Prominare, a professional's programming tool for GUI creation that has all the answers. Take a look at the code it generates. It's exactly the way you would have written it yourself. Define your naming convention and Prominare will stick to it to the letter.

To create custom controls, use Prominare as the resource editor and you'll have enough options to give you total freedom. It will also handle all major object libraries, PEN and multimedia. It handles all versions of OS/2 and understands your old resources or Windows resources as well.

Prominare is also intelligent. When you make modifications to an application you won't be hindered by unnecessary generation phases, it only regenerates the parts that have been modified.

Now here's the best bit. A shareware version called Prominare Lite is freely available on the Internet. Help yourself to it and see how it beats the stink out of anything else. Then get your head around this question. If the shareware version is this good, what will the full version do?

AVAILABLE THROUGH:

INDELIBLE BLUE TEL: 1-800-776-8284 (OUTSIDE USA 1-919-878-9700)
OS/2 EXPRESS TEL: 1-800-672-5945 (OUTSIDE USA 1-612-823-6255)
EGGHEAD SOFTWARE TEL: 1-800-344-1123 (OUTSIDE USA 1-509-922-7031)
IMAGESOFT INC. TEL: 1-800-245-8840 (OUTSIDE USA 1-516-767-2233)
PROGRAMMERS PARADISE TEL: 1-800-441-1511 (OUTSIDE USA 1-908-389-9228)



Prominare

Tel: +1 (416) 363 2292 Fax +1 (416) 363 6157
Tel +44 (117) 972 8500 Fax +44 (117) 972 8600
e-mail: designer@interlog.com
anonymous ftp: gold.interlog.com/pub/prominare

after John Mitchell's Justice Department made sweetheart deals with major anti-trust violators—such as ITT—even as Mitchell was raising money for the Nixon war chest from ITT's lobbyist Dita Beard. In that sense, Tunney approvals are no different than the everyday occurrence of a judge approving a criminal plea bargain or a class action settlement.

In the fall of 1982, legal experts disagreed on whether Tunney actually applied to the AT&T settlement because that case actually modified an existing 1956 consent decree. So both sides, under the prodding of the judge, agreed to abide by what one attorney from the case called "Tunney-like" principles. There's the key point. Both sides in AT&T agreed to seek the guidance and supervision of the judge to secure the public interest. In the Microsoft case, it's the opposite. Both sides, prosecutor and defendant, have teamed up to stymie the judge's efforts. Microsoft and the Attorney General have jointly appealed Sporkin's action. As Sporkin himself points out in a March 14 memorandum: "Ordinarily when an appeal is taken...there is a prevailing party who has an abiding interest in seeing that the lower court's decision will be sustained." He observes, "An appeal joined in by both parties is quite unusual."

The Justice Department has claimed in its appeal that Judge Sporkin has exceeded his Tunney Act authority by acting like a prosecutor and taking his own initiative. In an exchange, Deputy Attorney General Anne Bingaman, the Justice Department's lead prosecutor for the Microsoft case, rebuked Judge Sporkin. "Your Honor," asserts Bingaman, "I'm the prosecutor. You're the judge. I decide what makes a winning case, and if I don't want to file it, nobody can make me file it. What you can do is reject what I filed, and you can force me to relitigate the case....Your role is to accept or reject. Mine is to decide what to file. That's the reality."

Feisty and unbending, Judge Sporkin retorts, "My role is also to give you what's on my mind, so you can address it. So you can see what I see as a problem and try to deal with the problem. Of course, it's easy for me to reject. I've done it before. I don't think that's going to help. I do think you've got a lot of good in this decree. But I do think that, not only for your sake, but for Microsoft's sake, that if they are engaging in practices that are improper, they ought to stop it."

In a subsequent brief, the Judge defended his independence: "The Court cannot be faulted for its candor in telling parties the precise reason for its decision (see the sidebar, *Settlement Distress*, on page 24)."

SPECIAL REPORT

The Vapor Trail

One of the judge's most significant complaints is about the failure of the consent decree to stop Microsoft's continuing strategy of vaporware announcements as an anti-competitive market strategy. Over and over, Judge Sporkin hammered at Microsoft and Justice Department attorneys about the practice. "The intent here," Judge Sporkin chided Microsoft attorney Michael Urowsky, "was not to go out and tell that public that you're coming out with this nice new product. The intent here was to defeat a competitor who was already ready to come out with a product which you weren't ready to come out with—and to prevent that product from hitting the marketplace and to enjoy whatever it was entitled to enjoy by being able to beat your product to the market."

In one exchange with Urowsky, Judge Sporkin compares vaporware pre-announcements to fraudulent statements in the securities field. Zeroing in on a Microsoft pre-announcement designed to kill Borland's TurboCharge, Sporkin chided, "You know the securities laws. You know that would violate 10 (b) (5), don't you? You know that? You must admit that." Sporkin, a former SEC prosecutor, is an expert on the subject.

Urowsky replies, "To advise the public that a product will come in September which comes—" But the judge breaks in: "...You're omitting to state that the reason we are announcing this on this day is not because we want you people out there to buy our product, but we want to defeat these other people from coming to the marketplace... There is the falsity of that statement. And under the securities laws, that is a dishonest—that is an improper statement. You know that. I know that."

Judge Sporkin is right to look at misleading computer industry statements in the same context as every other commercial misstatement. Vaporware announcements are not harmless press releases. If General Motors announced a car that ran on water via cold fusion, its stock would soar, its dealerships would prosper. If that car didn't exist or was exaggerated, the SEC and FTC would put a few people in jail. No wonder Louis Gerstner, who comes from a traditional business background, decried IBM pre-release disclosures, snapping that employees in his former companies "could go to jail" for such conduct.

Microsoft clearly manipulated and damaged the competitive chances of OS/2 in 1993 with its unending vaporous announcements regarding NT. Users everywhere declined to proliferate or adopt OS/2 2.1, a legitimate up-and-running 32-bit multi-

threaded, multitasking operating system. Instead, they waited for NT, believing it would be a natural upgrade to the existing Windows 3.1 environment that would function as well if not better and with more applications. Developers followed their fears and the downward spiral continued. After numerous strategically rescheduled ship dates and market repositionings, the world saw that NT was not a Windows upgrade at all. It was a high-end resource-intensive product that did not compete in the same market segment as OS/2 2.1. Forced to fight a war against a phantom product, IBM lost millions of potential installed base. Ultimately, that crippled OS/2's economic viability, OS/2 ISVs lost millions of potential users—driving many developers out of business—and corporate America wasted billions in dollars wading through IS chaos.

If vaporware is such a potent problem, it is reckless to fail to point a finger at the computer trade press as the prime aider and abettor in the process. It isn't the *Wall Street Journal*, *New York Times*, and *Business Week* that are publishing every wisp of vaporous news. It is the information-starved, journalistically less experienced computer media. Various analyses of the computer press by experienced journalists have concluded that the computer media has not matured under the normal press traditions of skepticism and independence, but rather under the hobbyist gee-whiz mindset easily dominated and manipulated by big computer companies. Week after week, the computer press reports the minutia of pre-existence in excruciating detail. Consequently, these publications find themselves constantly reporting rumor as fact. IBM still hasn't mastered this process, but Microsoft can play the computer media like a fiddle.

Until the computer media grows up, vaporware will continue to be dangerous. Wayne Rash, a columnist for *Communications Week* and a former UPI correspondent, is as tough and hardened a mainstream journalist as they come. He offers this insight into the dilemma. "The life cycle of certain computer-related products can be three to six months," explains Rash, who has covered the ups and downs of the OS wars. "And the production lead time for most magazines is three to four months. Hence, the lifecycle can be less than the lead time. If computer magazines are to be current, they must write about products before they are to be released. After they are released, it's too late. Once you get into this mode for some products, you get into this mode for everything. One magazine writes about it and you compete."

By the same token, adds Rash, "Companies need to plan well

SPECIAL REPORT

ahead of time about computer purchases. So they need to know what products are going to be available when. We'd be irresponsible if we did not tell them. The problem is that too many computer journalists are doing an inadequate job of determining what is real and what is hype. Plus, a lot of journalists are afraid to say when the emperor has no clothes."

Quips Rash, "The cost of calling it as it is can be high. As long as journalists get abused by companies and their supporters—basically vigilantes—there will be some who will get sick of the abuse." Ironically, OS/2 is one of the worst offenders in this class. Last year, when Rash commented that OS/2 Warp needed more networking capability, he and his family were threatened on-line. In February, the technology columnist for the *San Francisco Chronicle*, David Einstein, was the victim of a vicious Team OS/2 vilification campaign when he criticized Warp. And IBM and Team OS/2 combined to publicly and privately attack the credibility of the *New York Times* when it allowed columnist Stephen Manes, a Gates biographer, to review Warp. IBM supports Team OS/2 with resources and logistics.

And, of course, IBM has repeatedly threatened *OS/2 Professional* that it would withhold advertising dollars if the magazine published information IBM didn't want in the press (*OS/2 Professional* always replies by asking IBM to go directly to hell and not collect \$200).

How to Break Up Microsoft and De-Install Windows

Clearly, there are many reasons why vaporware can thrive—but none of them are good. Bingaman acknowledges the problem vaporware poses and the unfair advantage Microsoft has accrued. But, Bingaman told a questioner at a press conference, "I don't know a remedy." We do. It's by no means a logistically simple one, but then again, neither was the plan that dictated the dismantling of AT&T. The remedy begins with the breakup of Microsoft into two or three separate firms and the de-installation of Windows to level the playing field, followed by a parity approach to future OS selection.

OS/2 Professional first proposed the de-installation of Windows in its February Publisher's Memo. Since then, *OS/2 Professional* Editor Brad Kliwer has refined the technical parameters needed to accomplish this historic remedy. His three-point program follows.

1. De-Installing Windows. The owner of every 386 or better preloaded with Windows would be sent a diskette and asked

whether they wanted to retain their Windows operating system or select DOS, OS/2, Unix, or another. The wording to describe each of these operating systems would be approved by the court.

If a user wanted no change, they would do nothing. If they wanted the benefits of OS/2, UNIX, or any of the DOS products, they would request either de-installation or new installation, probably to a central clearinghouse.

De-installation diskettes with sufficient warnings would de-install Windows, leaving DOS. De-installation is important because DOS users and vanilla Warp users are paying for Windows code they don't access. These people would be entitled to a refund. The level of those refunds might also inject some truth into an industry that has found it difficult to determine just how many actual Windows users are out there.

Installation of either UNIX, OS/2, or any other operating system would be no less or more of a nightmare than it currently is. The economics of royalties would have to be worked out by the clearinghouse, probably at the expense of Microsoft.

A small cottage industry of de-installers and installers would spring up overnight, as when phone connections were rewired across America. The de-installation or new installation could also be accomplished by a mass mailing of diskettes and CD-ROMs.

Consumers could, of course, reverse their decision within a set time period, such as 90 days. Many people would opt out of their current operating system. Undoubtedly, as with any operating system or long distance system, the quality and acceptance of each product would determine its success rate in the marketplace.

2. Multiple Operating System Computers. Real choices in operating systems are now available thanks to dramatically lower prices in disk storage and CD-ROM technology. All new PCs would be sold with 500 MB hard disks and CD-ROM drives. Every system sold by a computer manufacturer would come with a hard disk preformatted in a standard file format (FAT) without extended features such as disk compression. As other non-proprietary and royalty-free formats became available, vendors could opt to follow the new format standards.

Vendors would then sell computers either without any operating system (for clients who have site licensing and the ability to mass-install configurations) or a multiple operating system configuration (MOSC). MOSC-based computers would include a hardware serial number or imbed serial numbers in the operating system images. Every MOSC computer sale would include a fee paid to a clearinghouse. The fee would be high enough to accom-

FIX THE PROBLEM—NOT JUST MICROSOFT

Unfortunately, leveling the playing field by taking action against Microsoft will hardly cure the anti-competitive ills of computer commerce: monopolistic practices dominate much of the computer world. Remember, Microsoft simply inherited the original IBM personal computers monopoly. While Big Blue tiptoed around the Justice Department and loosened its monopolistic grip, Bill Gates took over, rapidly building his own monopoly, and with it, the Microsoft Empire. Fundamentally, IBM's chief complaint as current victim is that it can't employ its own monopolistic and anti-competitive practices on a larger scale.

Indeed, if left to its own devices, IBM would continue anti-competitive practices with OS/2 akin to those Microsoft has used with Windows. By virtue of its dominance of OS/2, IBM can generally—but not always—dictate who lives and dies in the marketplace.

"IBM will crush us," says DeScribe President Jim Lennane. DeScribe is the most powerful OS/2 word processor in existence, and far outperforms Lotus's AmiPro, bundled in the SmartSuite for OS/2. "But at the very time we should be benefitting from our six-year investment," complains Lennane, "we are foreclosed from the market by a \$120 bundle of Warp and the SmartSuite. Lotus is in the Windows market for twice that. It's because of the secret deal—actually no longer a secret—that IBM and Lotus have." Lennane adds poignantly, "IBM has never allowed its ISVs to prosper."

On the other hand, Athena Software President David Pollak, whose Mesa spreadsheet also competes with the SmartSuite, said his product would "win or lose" in the market based on its quality. Athena, notes Lennane, draws income from more than one platform,

whereas "DeScribe's financial success depends on OS/2 installations."

Like Microsoft's abuse of vaporware, IBM has announced "vapor programs" that have disrupted the OS/2 world. For example, in the spring of 1993, IBM announced an advertising co-oping program, convincing many small developers to advertise in a broad selection of computer publications. Internally, an IBM exec called it "free money." It was a time when IBM needed to show the public a vital and diverse array of applications and convince developers it would support their promotional efforts. But IBM reneged on the co-oping promise after many developers made advertising commitments, forcing several companies into financial ruin and/or away from OS/2.

PSS President Marvin Hilf described his encounter with IBM marketing as a "vapor promise." He says IBM reneged on its marketing support assurances.

When IBM itself advertises, its insertion orders require a "minimum 10-page separation" from "IBM competitors," which means a 20-page cushion. Recent IBM guidelines for advertising state that publications will be penalized one free page of advertising for each infraction. An IBM spokesperson said the penalty is enforced only when publications have not approved the lesser spread "in advance."

Advertising Age Senior Editor Keith Kelly comments, "I've heard of not putting competitors back to back or across from each other, or even a few pages apart. But 20 pages sounds high. IBM has a lot of clout with publications so it must create nightmares for ad directors trying to accommodate one of their biggest advertisers."

IBM can also muscle any smaller entity out of business. For example, in 1994, IBMers in Boca Raton tele-

phoned numerous conference hotels around the country to find out where an independent, Connecticut-based OS/2 conference planner was planning to hold technical interchanges. They then announced competing interchanges just weeks away in nearby locations, forcing the smaller meeting planner to cancel its conferences and eventually go out of business. Once the independent meeting planner disappeared, so did IBM's competing conferences.

When OS/2 suddenly changed its name from v3 to Warp last September, IBM refused to inform ISVs in a timely fashion, even though developers were finalizing their support manuals. Most developers only discovered the change at the last minute and were forced into costly last-minute revisions, suffering delays and extra expense in bringing their products to market. But SmartSuite developers learned of the change right away, according to IBM sources.

The same propensity for monopolistic action on the PC side is visible in the Apple world. Monopolistic practices have kept Mac clones out of the market for many years.

"The big monopolies feast on the little monopolies," says Lennane, "all the way down the food chain." Therefore, if the playing field is really to be leveled, after Microsoft is broken up and Windows de-installed, the Justice Department should make sure that neither IBM nor anyone else reinherits a computer monopoly. Maybe it's time to break up IBM into four companies: PC-based, OS-based, application-based, and service-based. Moreover, IBM's dominance in any given field should not be used to thwart the commercial independence of smaller companies so essential to a thriving computer field. ♦

Edwin Black

SPECIAL REPORT

moderate most of the options available to the enduser (probably in the \$100 range).

MOSC computers would have compressed operating system images stored on the hard disk, ready to decompress and run when the user made a selection. A typical list of choices might include three versions of DOS (IBM, Microsoft, and Novell), two versions of Windows (3.1 and Win95, when available), OS/2 Warp, and a UNIX variant. Additional options could include extended features such as Windows for Workgroups and Warp Connect.

Back-up images of each operating system would be provided on CD-ROM. The operating system vendors would be responsible for media and costs and any promotional material included with the systems.

The decompressed images would expire after 30 days of use. At any time within the trial period, the user could call the clearinghouse at an 800 number (by phone or modem) to obtain an unlocking code based on the imbedded serial number (similar to the Postage by Phone system used by Pitney Bowes for postage meters). The unlock code would be stored in an unused area of the system CMOS for convenient reinstallation should the need arise.

The clearinghouse would then reimburse the vendor for the selected operating system. To maintain price differentiation and competitiveness, the vendor could offer rebates for selecting a particular operating system. Should a user decide to change operating systems after registering, the clearinghouse could charge the user's credit card and release the unlock key or refer the user to a source for a more current version.

There are many other systems available. For example, just as we were going to press, IBM announced Select-A-System as a standard MOS feature on its ThinkPads, Aptivas, and certain other machines enjoying at least 8 MB of RAM. With the click of an icon, Select-A-System will allow a user to switch back and forth from DOS to Windows to OS/2. Clearly, IBM, which has been the main victim of Microsoft's anti-competitive edge, is taking the lead in showing a better free market approach to multiple OS computers.

Here one must remember the injunction IBM chairman Lou Gerstner made at his first press conference: "We're going to connect to everything."

3. Corporate Divestiture. Microsoft could spawn at least three healthy and independent companies: operating systems, applications, and a third firm dedicated to consumer services,

such as the Microsoft Network. An independent Microsoft application group should have more freedom and motivation to develop applications for other operating systems such as Apple's System 7.5, OS/2, and UNIX. In addition, Microsoft would be compelled to follow guidelines that could be applied to the entire industry.

The Microsoft Operating Systems Co. (MOS) would include the obvious operating system development, sales, and support teams: DOS, Windows 3.x, Win95, and Windows NT. LAN Manager and Windows for Workgroups, being products tightly integrated with the operating system, would also belong to MOS. SQL Server and other server oriented products that act as host platforms would become MOS products as well.

The only applications to fall under MOS would be languages and development tools. To deprive the tools developers and operating systems developers of each others' resources would unnecessarily burden advancement in both areas.

The Microsoft Applications Company (MAP) would produce consumer oriented products such as Word, Excel, and Access. Development teams would have no better access to MOS developments than any other developers. MAP and MOS employees would be prohibited from employment by each other for a period of two years following the breakup, and would thereafter be held to a non-disclosure standard. Attempts to circumvent the bar through third party development teams would be scrutinized.

MAP and MOS would be prohibited from special bundling arrangements for a period of two years.

Announcements for either company would be held to a reasonable level of accountability with respect to truth in advertising. Examples would include committing to system support for any operating system—including ones not yet invented—which achieve a certain level, such as two million registered users. Guidelines would also require a promise for cross-platform compatibility (such as seamless operation of Win32s across Windows, NT, and Win95).

Technology demonstrations would include only live running code, not mock ups or demos. Announcements of products more than one year prior to release would be dramatically curtailed.

Microsoft would be barred from the computer hardware field.

Our plan for leveling the playing field only launches the debate. Our technical suggestions are only the beginning. There are many unanswered questions and many issues yet to be resolved if our plan is accepted. And there has never been a greater opportunity

continued on page 27

STANLEY SPORKIN

He's feisty, charming, witty, and very sure of himself. Withstanding pressure and not playing along is his trademark. In this case he's standing up to both the defendant and the plaintiff. He is, of course, Federal Judge Stanley Sporkin, one of the bench's most distinguished jurists.

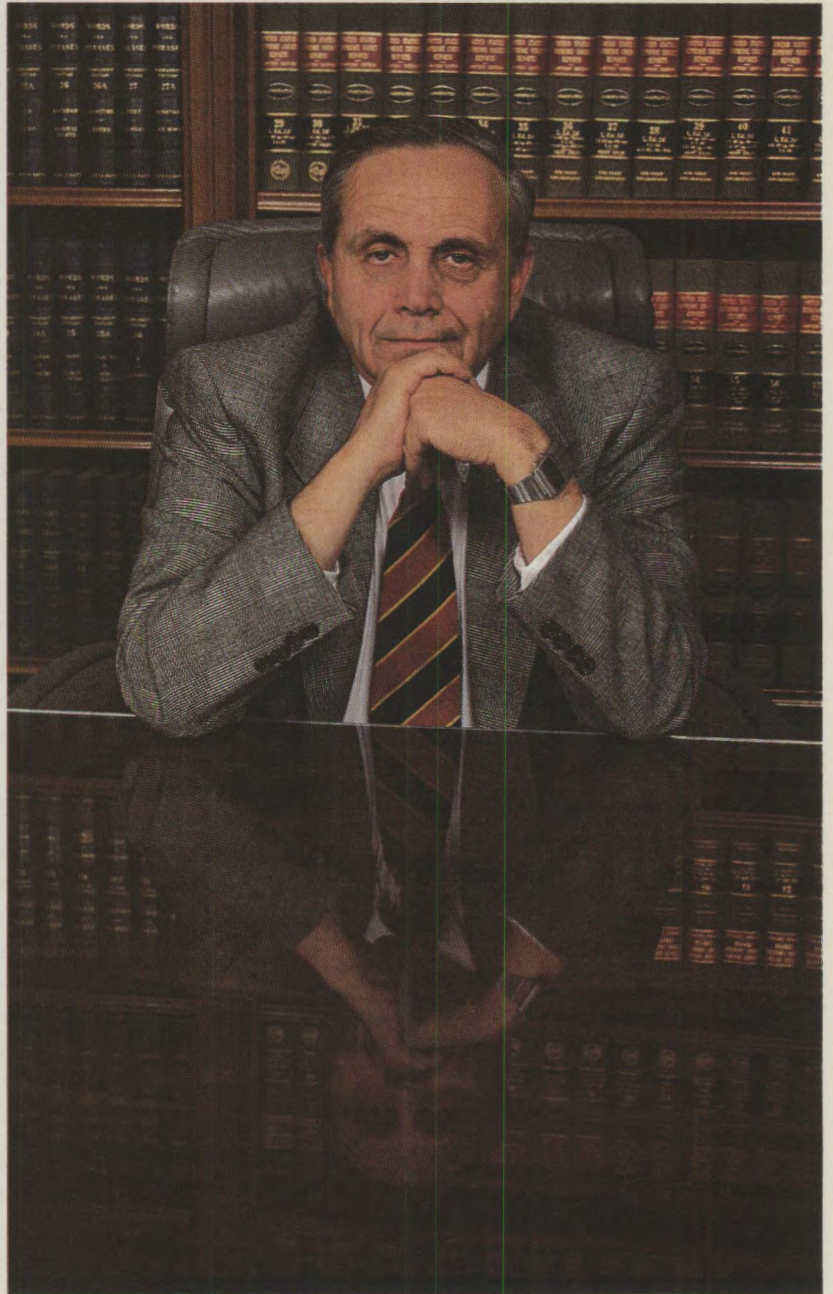
The judge's private office, his chambers, is filled with a large conference table, works of art, modern lighting, a library of books including Churchill's memoirs, and a PC workstation right at his desk. A plaque from the Secret Service hangs on the wall. The judge's comings and goings from the chamber to his bench are carefully monitored so the judge enters only when all are assembled and ready. He has years of experience in high-profile cases.

A graduate of Yale, Sporkin is the son of Philadelphia Judge Maurice Sporkin. Stanley Sporkin established his tough credentials during two decades as an enforcement attorney with the Securities and Exchange Commission. He rose through the ranks and, in 1974, became the Director of Enforcement. During those years, his specialty was standing up to major corporations.

Consent decrees were common, hence his understanding of the Tunney Act.

During the Watergate-era, he was one of the SEC "Jew-boys" whom Nixon wanted off his back. At the time, Sporkin, along with Irv Pollack, was investigating rogue international financier Robert Vesco.

From 1981 to 1986, he served as General Counsel to the Central Intelligence Agency, where he received the Distinguished Intelligence Medal. President Ronald Reagan appointed Sporkin a federal judge in December 1985. In 1990, Judge Sporkin was inducted into the Bnai Brith Hall of Fame "for unswerving commitment to the guarantee that our system of justice provides equality for one and all."



Exclusive photo for OS/2 Professional by Vicki Lewis



Relish

TIME MANAGEMENT THAT WORKS
THE WAY YOU DO

-  First with drag-drop
-  First with desktop objects
-  First to run on OS/2 for the Power PC

PRODUCTIVE INNOVATION
PROVEN RELIABILITY

Sundial Systems Corporation

310-596-5121

© 1995 Sundial Systems Corporation. All rights reserved.
Relish is a registered trademark of Sundial Systems Corporation. OS/2 is a registered trademark of International Business Machines Corporation.

For more information circle #37

Now The Most Efficient Way To Work In OS/2. Is Also The Most Affordable.

OS/2 Power Users! realize the full power of OS/2 with SkyScraper™ *DESKTOP MANAGER* for OS/2. This application gives you practically unlimited **screen real estate**. **Virtual desktops** at a single click; all your applications run **maximized** on their own desktops!

Launchpad and many other features—a **MUST** for any serious OS/2 user.

ALL
THIS FOR
\$49⁰⁰

SkyScraper™

FOR OS/2

Organize Your Desktop!

Call 1-800-228-0666
and give the priority code A95001.



Binar Graphics, Inc.
30 Mitchell Blvd.
San Rafael, CA 94903-2034



Member
OS/2
Vendor Council

EDITORS'
CHOICE
AWARD
OS/2
MAGAZINE
1994

For more information circle #272

SETTLEMENT DISTRESS

The days and hours leading up to the Microsoft settlement were tense and dramatic. On January 20, 1995, in her own words, Assistant Attorney General Anne Bingaman tells Judge Sporkin what happened.

Anne Bingaman: I call these [Microsoft] people over here with whom I had had some acrimonious meetings, to put it kindly, over the course of the fall and the winter. And I say to them, "we have decided to recommend to the Attorney General to file a case. If you want to talk about settling before, I'll be glad to. Otherwise, we're filing."

They said, "we'll talk to you." ... [Then] Ensued an extraordinary two weeks in my life and everyone else's life involved. About 15 of us spent 18 hour days, six of them in Brussels, around the clock negotiating to the wall, back to Washington, doing the same thing. ...

[H]ere's the point of the story. I never knew if we had a settlement. ... I had a lawyer with a complaint that I signed standing in a Federal Court, right next to a phone in a U.S. Attorney's Office where I could sue these guys in 20 minutes if the negotiations broke down, and I fully expected to do that on the last day. ...

To my surprise, we went ahead, [and] did the deal. ... The point of my story, Your Honor, is this. I didn't care if I sued them on two counts, three counts, one count, five counts. If you're in a suit with Microsoft for three years, you're in a dog fight. ... It wasn't that I was afraid to sue them, unwilling to sue them. I was within 20 minutes of suing them at any moment. ...

[Y]ou know, these guys are not stupid. I learned why these OEMs are not fond of them. I got pretty not fond of them myself before it was over. ... And they weren't that nuts about me either. ... What they were doing to me, Your Honor, was double timing me. ... [W]e'd negotiate, and they'd say, "well, we got to clear it with Bill." We'd come to a deal. Well, Bill doesn't like this. Finally, Thursday night I said, "folks, I got to talk to Bill. This isn't working. I mean, we got to quit going through you. I'm negotiating against myself. I'm through talking to you guys. Either we talk to Bill or forget it."

So we got Bill on the phone at 11:00 that night. They walked out. You heard this story. When negotiations resumed the next morning, well, we have one more chance. Gates gets on the phone at noon to 3:00 o'clock that day in my office, huge melee, huge thing, I had a lawyer ready to sue them, because I told them, "... I wasn't making threats. I had it [the suit] ready to go period."

So, Your Honor, I didn't care ... I'd sue them on the licensing case. I'd sue them on vaporware. I'd sue them on anything if I thought I could win the case. But, Your Honor, I didn't think I could win these other claims at that time.

Now, if somebody comes to me with the evidence and shows me I can win it, hey, I sort of like suing these guys. ... You know, it frees the market if you have a claim. But I'll tell you something, Your Honor, it would be the height of irresponsibility and abdication of my duty to sue people [if] I'm going to lose this case. ...

[W]e brought the licensing case because I didn't see the others at that time. ... the history of this industry is real important ... 1980, you got Bill Gates sitting out there in Seattle. ... IBM in a rush to get out a PC because Apple is killing

SETTLEMENT DISTRESS

them in the market, decides, boy, let's hurry, hurry, hurry. Let's put together a clone. They got this Boca Raton group down there, fast skunk works assembling a little PC that they can sell quick against Apple, having no idea what's going to happen.

So IBM has this team putting together IBM PC and they're doing it off the shelf. They're buying chips. They're buying software. They're buying parts, and it's open architecture. That is, it wasn't exclusive. They didn't say, "if you sell to us, you can't sell to anybody else." They said, "we'll buy it and you can sell it to anybody else." ...

[T]he IBM PC market in clones went like this [gesturing]. It was wild fire from '80 to '88. We all lived through it. It revolutionized the world, and we're still living through it. ... Microsoft had no per processor licenses at that point in time. Its market power developed in these years was precisely from IBM. ...

[The] operating system is sort of the low part of the machine. None of us can understand it. Applications, word processing and spreadsheet, sit on top of it, we can all type and say delete and do stuff like that. Applications writers write to specific operating system platforms. Okay. Microsoft is selling big, so they say, "hey, I'm going to write to Microsoft. I'll sell more of my applications programs." And the more programs that are available, the more operating systems by Microsoft are sold, and that's the positive feedback in the market. That's just how it happens.

[In] 1988, Microsoft puts in for the first time this per processor license. 1989, it was only 20 percent of OEM sales. 1990, it was 22 percent. 1991, it was 27 percent. So, Your Honor, most of the market, as of 1991, was not affected by the per processor contract.

In 1992 and 1993, it jumps to 50 and 60 percent, and that, Your Honor, is why I felt impelled to act when I did to open the market for the future.

Right now ... people aren't sure what Sporkin is going to do. There is great confusion. Original equipment manufacturers ... need to know what are the rules here? You know, what are these guys going to be constrained by? That's why it's important to act.

Per processor licenses, Your Honor, let me tell you what those are. It was a tax. ... anti-competitive without any question. ... they said "... we'll give you a cheaper price. And [you] give us 100 percent minimum commitments." That is, estimate a year in advance how many sales you're going to make and commit to pay that much. And if you don't make that many sales, you pay us anyway. Sort of the old company store, locked in, take or pay. Plus three to five year license terms. So, Your Honor, how is a competitor going to get in here? How is IBM's OS/2 or Apple or any other innovative system going to break into this market? It's tough with—it's like a barricade of contract terms with these OEMs. ... Because, you know, if you're going to have to pay Microsoft, call it \$15, anyway, why would you pay another \$10 or \$15 for another product? You'd say, this is nuts. I'll just go ahead and use Microsoft.

So the combination of the tax imposed by per processor, the lengthy contracts, three to five years, the 100 percent lock-in, the take or pay feature, every processor you sold you had to—whether you sold it or not, ... that's the company store aspect of this thing. ... This is anti-competitive. Nobody can help that IBM gave you [Microsoft] this stuff. ... That was IBM's mistake. ♦



C++ Virtual Operating System

- Supports IBM CSet++ V2.01 and Borland C++ V1.5 for OS/2 2.1 & 3.0
- The C++ exception mechanism is used extensively within i++.
- The Online Programming Reference is second to none. All classes, methods and constants are documented in hypertext format.
- Over 100 samples covering most aspects of PM and GPI programming are included.
- A superior Online Programming Guide contains comprehensive tutorials highlighting C++/GUI programming techniques.
- The i++ runtime is Royalty-Free!

Virtual Software

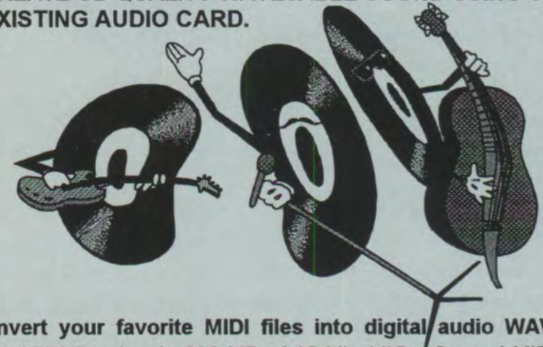
Available NOW on CD-ROM through OS/2 EXPRESS!



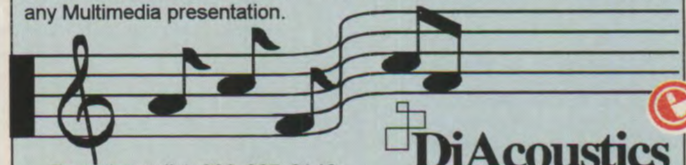
For more information circle #290

MIDI Renderer™

CREATE CD QUALITY WAVETABLE SOUND USING YOUR EXISTING AUDIO CARD.



Convert your favorite MIDI files into digital audio WAV files! Use MIDI Renderer's 200 MB of 16 bit, 44Khz General MIDI (GM) instrument samples, stored on CD-ROM, to bring your files from boring to awesome. This software synthesizer allows, for the first time, playback of all 128 GM instruments simultaneously. Thus, full orchestration capability is at your hands. MIDI Renderer is perfect for reviving your Sound Blaster compatible sound card and livening up any Multimedia presentation.



To order call 1-800-365-6143
or for more info 205-722-0490

DOS-Windows-OS/2

[HTTP://WWW.diacoustics.com/~diac](http://www.diacoustics.com/~diac)
See us AT COMDEX/Spring '95
Booth M5545



For more information circle #212

April 1995 OS/2 Professional 25

THE DEFINITIVE Marketing Guide For Software Publishers

Whether you're a product, brand, or marcom manager, and whether you've just developed your first program, or you hold a dominant market position, the steps required to get your product into the hands of the end user are the same. And *The Product Marketing Handbook* is the only publication that details *all* the steps in getting your product recognized, accepted and widely sold.

In total, *The Product Marketing Handbook* is among the finest resources available to help you avoid mistakes and losses while showing you step-by-step how to increase sales and profits. It provides you with the competitive edge needed to launch and sustain your product in today's rough and tumble software marketplace.

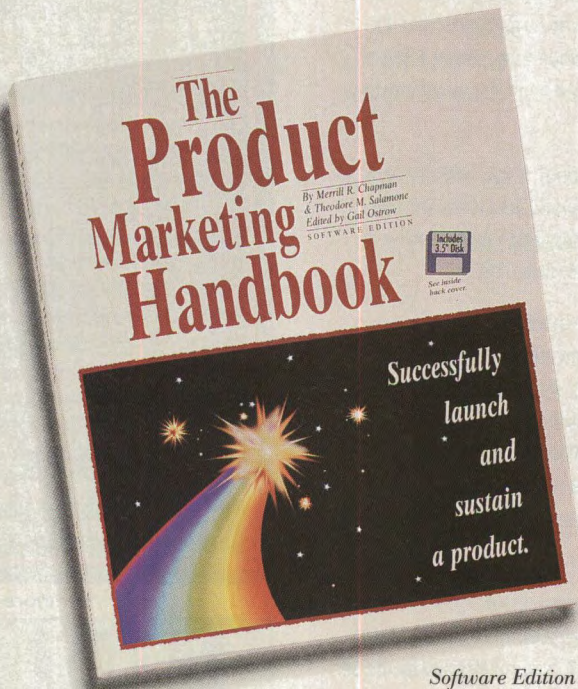
The handbook is a precise road map to success that includes:

- **Positioning, Pricing and Naming**
- **Channel Distribution**
- **Collaterals**
- **Public Relations and Product Review Programs**
- **Advertising**
- **Sales Promotions**
- **Direct Marketing**
- **Bundling**
- **Electronic Marketing**
- **Trade Shows**

True focus stories describe how industry winners triumphed and the decisions that led the losers to disaster. Each chapter concludes with checklists of action items that guide you into evaluating your particular circumstance, establishing objectives and measuring effectiveness.

About the author...

Merrill R. Chapman has been in the software industry for 15 years and has seen firsthand the brilliant marketing techniques employed by industry giants and the catastrophic errors made by companies that are no longer in business. He presently consults with and trains marketing professionals in companies that include IBM, DataEase, SUN, Berlitz and WordPerfect.

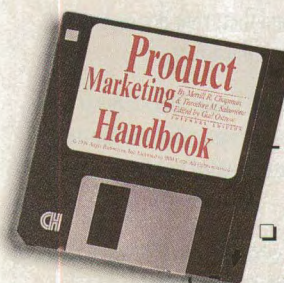


Software Edition

\$49⁹⁵

"This is the book that drives your bottom line. Its extensive use of checklists is designed to help the novice or professional plan, manage, and execute programs as well as evaluate the results. It takes you through the nuts and bolts of successfully launching and maintaining products via different promotional programs."

Bill C. Donovan
Brand Manager, IBM Corporation



Software publishing is one of the most competitive and highly lucrative industries in today's world. And you can't afford to be a player without a full and certain knowledge of *all* the facts contained in *The Product Marketing Handbook*.

Free Bonus Offer!

Order today and receive a **FREE**, 3-month trial subscription to The Ambit Group's *Channel Compass*, a monthly guide to the latest trends in PC software channel marketing. A \$120 value!

To immediately receive your copy of *The Product Marketing Handbook* call

1-800-274-6204,

or fill out and mail the attached coupon to: **Aegis Resources, Inc., 35 Ridge Road, Stratford, CT 06497 U.S.A.**

For faster service, fax with credit information to **1-800-480-6151**.

For international orders call **1-203-380-8261**. International fax, **1-203-380-8263**.

☐ Please send me _____ copies of **The Product Marketing Handbook**.

☐ Each copy is \$49.95 U.S.* plus \$8.95 for shipping and handling (U.S. and Canada). Enclosed is a certified check or money order for _____. International shipping costs slightly higher.

☐ MasterCard ☐ Visa ID 001

Card #: _____ Exp. Date: _____

Name _____

Title _____

Company _____

Street Address _____

City _____

State _____ Zip _____

*Connecticut residents are required to add a 6% sales tax of \$3.00 per copy.

Aegis

For more information circle #64

SPECIAL REPORT

continued from page 22

than now, nor a more determined personality than Judge Sporkin, to remedy the wrongs.

Justice and the Judge

Judge Sporkin can indeed remap the computer world. But no matter how determined he is, he can't do it alone. The Justice Department first must realize that Judge Sporkin will never give in to pressure. Second, the Justice Department should understand that they are lucky to have a judge who cares about the public welfare. Third, they should join him by revising their demands on Microsoft to effect serious remedy and serious change.

Most legal experts believe that the Appeals Court ruling later this month will reverse Judge Sporkin and write guidelines for future judicial action. There is precious little law written on the Tunney Act, and Judge Sporkin's discretion could be upheld. The Justice Department would then have to decide if it will renegotiate, relitigate, or even drop the case against Microsoft.

It's hardly excessive drama to say the future of our nation's economic vitality depends on what happens in the Sporkin vs. Microsoft contest. America's robber barons of yore have controlled railroads, raw materials, and finance. Today, the new robber barons control data. In their quest for power and control, the new robber barons are not unlike the old tycoons. In the old days, they gave money to the opera and charity, and wore fancy silk suits. Today, the robber barons of the '90s wear colorful sweaters, hire PR firms to soften up their opposition, and blitz advertising portrays them as empowering the average man.

In fact, the breakup of Microsoft and the leveling of the computer playing field touches a nerve close to our most constitutionally-cherished precepts: freedom of ideas. The Constitution itself guarantees freedom of press, freedom of speech, freedom of religion, and even establishes a Copyright and Patent Office to protect intellectual property. It boils down to one overriding democratic fundamental: the free exchange of ideas. If Microsoft controls the networks, the connecting software, the serving software, and the receiving software, they can then control free access to the ideas that drive society's development.

One man is now blocking the proliferation of the Microsoft Empire. His name is Stanley Sporkin. And he's doing it virtually alone. ♦

Editor Bradley D. Klierer contributed to this article. Research was provided by Jim Willis and Tim Stewart.

CROSS-PLATFORM NATIVE 32-BIT WORD PROCESSING WITH DESCRIBE® 5.0



1994 Best New Product
DeScribe 5.0

\$49

DeScribe Showcase '95

Evaluation CD-ROM featuring full versions of the award winning DeScribe Word Processor 5.0 for OS/2, Windows™, NT and Windows '95.*

\$49

User Guide

DeScribe 5.0 User's Guide
by Que Books.*

\$159

DeScribe 5.0 CX

Standard Edition includes free installation support and access to Pay Support Services, plus DeLights CPU monitoring utility.

* Technical support is available at extra charge. All products expire on 12/31/95. Upgrade to Unlimited Expiration (UXD) version \$50. CLA required for UXD version. No guarantees or money back refunds. All product sales are final. Available April '95.

To Order Call:

DESCRIBE, INC.

1-813-732-5500 Sales

1-916-646-1111 Support



For more information circle #7

April 1995 OS2 Professional 27

NEW FOR OS/2!

Create tables quickly and easily
with the visual table designer.

Table: Customer

Field Name	Field Type	Description
Id	Number	Unique customer id
Last name	Text	Customer last name
First name	Text	Customer first name
Middle initial	Text	Customer middle initial
Balance	Number	Customer account balance
Comments	Memo	Any comments about customers acc

Format:
 Decimal places: 6
 Default value:
 Can be blank: No
 Validation rule:
 Validation text:

1994 International Flag Sales
1-Feb-1995

Country	Sales	% of Total
Canada		
1st Quarter	\$419.47	9.64%
2nd Quarter	\$472.78	10.86%
3rd Quarter	\$501.26	11.52%
4th Quarter	\$515.67	11.85%
Total for Canada:	\$1,909.18	43.87%
United Kingdom		
1st Quarter	\$543.75	12.50%
2nd Quarter	\$611.39	14.05%
3rd Quarter	\$597.99	13.74%
4th Quarter	\$689.12	15.84%
Total for United Kingdom:	\$2,442.25	56.13%
Grand Total:	\$4,351.43	100.0%

Generate reports that get results with groups, subtotals, graphics and even percent-of-total fields!

Database Power Tools.

Users and developers can use DBExpert™ to create tables, forms, reports, or entire applications without programming!

Save Time

Spreadsheet data editing, visual object designers, and on-screen report preview help you get the job done faster.

Eliminate Paperwork

Easily set up tables and data-entry forms to track your important information.

Get Information FAST

Use graphical Query-By-Example to get the information you need. Just drag-and-drop tables and fields and add conditions.

Share Data

Your teams can share data and applications while DBExpert handles locking and transactions.

Protect Your Investment

When your database needs change, your applications will keep on working hard for you. DBExpert supports dBASE, Clipper, FoxPro, FoxBASE, Oracle, DB2/2, DB2/6000, SQL/400, MVS DB2, SQL/DS.

We Guarantee It!

If you're not completely satisfied with DBExpert, return it within 30 days for a full refund.

Inventory

Flag Inventory

Part Number: US-1

Description: United States

Bin Number: D14

On Hand: 72

OK Cancel

Record: 1

Create great-looking forms with text, data, graphics, 3D effects and pictures with just a few mouse clicks.

DBExpert™

Introductory price \$199 thru 6/95 (retail \$495)

(800) 519-9574

Outside the US call (970) 858-0200

Designer Software, Inc.

©1995, Designer Software, Inc. DBExpert is a trademark of Designer Software, Inc. Other company and product names are trademarks or registered trademarks of their respective holders.





KOGAN'S KORNER

'Fessing Up

BY MICHAEL S. KOGAN

As I prepare to write this month's column, on the third anniversary of 32-bit OS/2, I find myself at an uncharacteristic loss for words. I've had the opportunity to cover just about everything in the OS/2 universe and now may be the time to reflect, revisit, and reexamine some of the more controversial issues I've covered and the positions I've taken over the last 16 months.

Objections

In February 1994, *Compounding The Document Dilemma*, I discussed the upcoming battle of the object technologies, OLE2 and OpenDoc, and took some positions that were less than popular with the OS/2 crowd. Specifically, many disagreed that although OpenDoc is a superior technology to OLE2, its chances of becoming the industry object standard were slim, and that its acceptance as the cross-platform application standard would be determined by its presence in the Windows and Apple markets.

This is still true today. The majority of major ISVs are focusing on Win95 applications and OLE2, and even those committed to OS/2 versions of their products have a Win95 first, OS/2 second, focus.

Also, more and more Apple developers are moving to Microsoft tools and OLE2 to get cross-platform portability between the Apple and Windows markets.

To give credit where credit is due, the OpenDoc betas for OS/2 and Windows are available. Novell has done an excellent job getting OpenDoc/OLE2 interoperability working, so much so that Microsoft promises to recognize OpenDoc as an "OLE2 development tool." However, ISVs have been reluctant to use OpenDoc to deliver OLE2 features on Win95 because they don't want to risk the timely delivery of Win95 products.

Which brings us to another contentious point that an OS/2 version of OLE2 might be better for the development of native

OS/2 applications. While an OS/2 version of OLE2 may not be as technically robust and elegant as OpenDoc, it would make cross-platform support easier for ISVs. While rumors of a third-party effort to port OLE2 to OS/2 have abounded, IBM has not supported this direction nor offered assistance with the inevitable licensing issues an OS/2 OLE2 would bring up.

In the short-term this means OLE2 before OpenDoc, and Windows applications continuing to precede the shipment of their OS/2 counterparts. Over the long-term or when OpenDoc is widely available on Apple, Windows, and OS/2, ISVs will be able to assess the use of OpenDoc for cross-platform objects without compromising the immediate marketing opportunity represented by Win95.

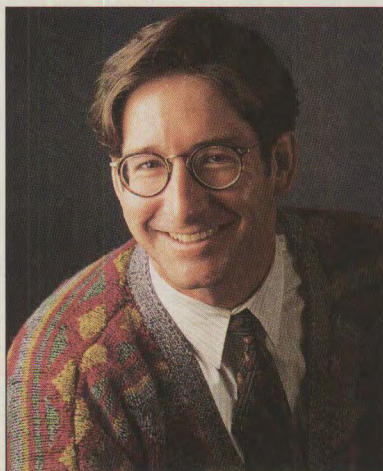
Workplace NT

A year ago in the April 1994 issue, *Workplace NT: April Fool or Food for Thought* shook up a lot of readers. I suggested that IBM, OEMs, ISVs, and OS/2 users might be better served by putting the OS/2 personality and Workplace Shell on Windows NT, and that by the time OS/2 for PowerPC was delivered in the second half of 1995 it may not be as competitive as a Workplace NT or Windows NT from the perspective of performance, portability,

and hardware support.

Reader response went from "It's an April Fool's joke, right?" to "That #\$\$%\$\$% traitor is supposed to be for OS/2!" Well, it was no joke, and it's still true. With the OS/2 for PowerPC beta weighing in at 32 MB RAM and slated for delivery in the second half of this year, those predictions were right on target—unfortunately for all concerned OS/2 aficionados.

Windows NT is still at least three years ahead of OS/2 for PowerPC in product maturity. And, with its true cross-platform portability and vast hardware support, it is positioned to make life miserable for IBM's PSP on the PowerPC platform when it materializes later this year.

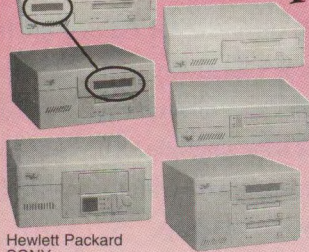


GigaTrend Inc. is Backing Up The OS/2 World with...

The best hardware...

With our
Patented LCD!!!

The best software...



Hewlett Packard
SONY
Exabyte



We Provide the Entire Backup Solution...
with LIFETIME SUPPORT



The GigaMan says,
"I'm a Wizard with OS/2 Solutions!"

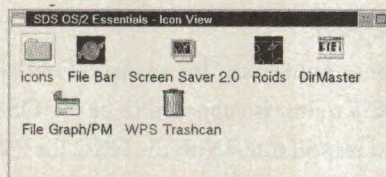
GigaTrend Inc.
World Headquarters
2234 Rutherford Road
Carlsbad, CA 92008
(800) 743-4442
(619) 931-9122
(619) 929-0846 (FAX)



For more information circle #285

OS/2 Essentials

The Mini-Application Suite
every OS/2 user must have!



Comes with:
A File Manager. A Screen Saver. A Disk Space Grapher. A Task Bar.
A WPS Trashcan. A multimedia Arcade Game. And a great price!

SDS

Stardock Systems Inc.

39.95 SRP!

13405 Addison
Gibraltar, MI
48173

Phone: (313)782-2248, FAX (313) 782-9868

For more information circle #289

Chip Wars

In *Chip Wars* (November 1993), *Chip Wars Revisited* (June 1994), and *PRePping For Primetime* (October 1994), I consistently supported continued x86 domination, and contended that the RISC invasion of our desktops would not occur for years, if ever.

Thankfully, OS/2's bread and butter today is the x86 platform, which continues to dominate in the face of the PowerPC threat. With its plans to release 120 and 150MHz Pentium chips and the high-end P6 processor, Intel has demonstrated that it can bring the benefits of RISC technology to our desktops without forsaking compatibility. That's something no RISC vendor has yet been able to do.

Both Intel and IBM continue to head toward architectures that support both x86 and a native RISC instruction set (the H-P Intel P86 and PowerPC 615), validating my point that x86 compatibility via software emulation is not viable in today's market. Perhaps the best way to position RISC technology in the future will be as an x86 accelerator.

Coming Clean

There is nothing like being both judge and jury for yourself, but let me say it anyway—I told you so.

Forecasting the future is not a crap shoot. Although the computer industry is known for its rapid growth, close scrutiny of specific products makes it seem as if it's moving slower than we'd all like.

As I see it, the secret to grasping the big picture involves an understanding of the historical context, technology, and business issues, along with a bit of common sense. In that vein, I look forward to continuing to report both the good news and the bad, pro-OS/2 or not. Viewing the world through rose-colored glasses may be politically correct, but it has little to do with reality. ♦

Look for this symbol.



When you see this icon on any ad in this magazine, it means that product may be ordered through OS/2 Express.

So, look for the  and then call

1-800-OS2-KWIK



HANDS ON

Hard(ware) Decisions For Your Fax Network

Here's the lingo and the lowdown on the latest fax systems for network use.

BY STEVEN LEVENSON

Matching appropriate hardware to required tasks is one of the typical dilemmas for corporate procurement personnel. While standalone PC equipment may work well on a home system running DOS and Windows, the demands of a multitasking and/or network environment often require more robust equipment. For example, when faxing, network users generally have a lower tolerance for errors than standalone PC users. After all, it's easy to resend a fax from your home desktop PC. But multiply fax errors by the demands of a network and things get ugly. If a fax/modem can't keep up with the fax server's load, disgruntled network users have to keep resending their faxes.

So what kind of fax system should a network use? The industry has several not quite standardized implementations that vary from Class 1 to Class 2 to completely proprietary hardware. With more changes in the works, the answer will change as swiftly as the technology.

Most popular fax modems are defined as Class 1 or Class 2. The former class includes low-cost modems that place the burden of fax transmission management on the computer running the fax software. Class 2 is designed for more powerful modems that manage more of the fax transmission process by way of an onboard processor and software. Most network supervisors will opt for either a Class 2 fax modem or a proprietary system suited to the site's demands. Many Class 1 fax modems (particularly older models) support only limited throughput and only one phone line.

Class 2 fax modems suffer from problems of their own. With more of the processing code built in, the fax software may have trouble working around bugs in a particular Class 2 model's firmware. More importantly, the quality of Class 2 fax modems varies according to the range of draft standards governing their design. In part due to the constant revamping of standards, three fundamental industry oversights account for what some experts call the "Clash 2" phenomenon between fax/modems and fax soft-

ware: modem speed, hardware connections, and command-set syntax. For instance, the draft proposal for Class 2 fax/modem criteria specifies that data communications between a computer's CPU and modem should be 19.2 Kbps. But it did not specify a default speed for the modem when switching from data to fax mode. Many fax software products require that the communications between CPU and fax mode to run at 19.2 Kbps, yet several modem makers only provide 9600 bps between the CPU and modem as the default speed for the fax mode.

The Class 2 draft proposal also mandates a software handshake (XON/XOFF) to control data flow between the CPU and modem, but requires no hardware handshake. (Hardware handshaking refers to coordinating signals passed over dedicated RTS and CTS paths on a serial device—a more efficient technique than XON/XOFF.) While most modem vendors support software handshaking, some fax software products *require* hardware handshaking and won't work with a modem that lacks this feature.

Ironically, even when the industry overhauled the command-set syntax contained in the Class 2 draft proposal, the change further exacerbated incompatibility between fax modems and the software that runs them. To accommodate these changes, many older device drivers may require rewriting to accommodate the revised command names and changed parameters. Future additions such as BFT (Binary File Transfer, a technology that piggybacks general computer data such as word processing files) may further muddy the waters. To keep pace with the changes, the savvy fax support administrator should watch fax modem and software vendors BBS systems for software and driver updates.

Although the finalized Class 2.0 standard was passed in 1993, it remains to be seen whether fax modem vendors will choose to adhere to it. (Note: industry watchers use the term "Class 2" to designate the draft proposal and "Class 2.0" to refer to the ratified standard.) As this issue went to press the International Telecommunication Union, Telecommunication Standardiza-

CIRCLE IT!

For additional information about an advertised product or service, circle the number. When you circle a number, you not only gain access to valuable information, you demonstrate to the advertisers that their support for *OS/2 Professional* gains them an important visibility in the OS/2 market. To subscribe, check the subscription box, and fill out the qualifying information required to fulfill all subscription requests.

ADVERTISER	PAGE	NUMBER
Artisoft	0/1	256
Athena Design	67	248
Attachmate	4	280
Binar Graphics	24	272
Bloodhound	71	
Clearlook	70	226
Computer Data Strategies	74	252
Computer Interface	62	283
CorelDRAW	82	5
Corporate Systems Center	14	287
Custom Design Software	62	258
Danware	56	257
DeScribe	27	7
Designer Software	28	293
Diacoustics	25	212
DUX Software	64	269
Fax Forward	66	235
GigaTrend	30	285
Hilgraeve	65	203
IBM Cad/3x	63	196
IBM Personal Software Products	13	
InnoVal Report on OS/2	52	282
Intec Controls	10	192
IS International	76	292
Levine Computer Consulting	78	69
MHR	66	92
Mitnor Software	51	53
OnSpec Automation Solutions	60	232
OS/2 Professional CD-ROM	75	
PCX	81	123
Prominare	18	284
Raleigh Systems	50	147
Rhintek	67	271
SDS	30	289
SoftTouch Systems	2	98
Software Builders	63	135
Spitfire Software	54	279
Stac Storage & Communications	6	54
Sundial Systems	24	37
Syntegration	54	197
Sys Ed	51	190
Sytron	8	73
TechBridge Technology	12	265
The Product Marketing Handbook	26	64
Vendor Council	55	182
Virtual Software	25	290

HANDS ON

tion Sector (ITU-T), formerly known as CCITT, was expected to ratify the international standard for Class 1 and Class 2. The ITU-T will standardize the AT command-set that the fax software uses to control and configure the modem, including enhancements specifically designed for Class 2 fax modems. All U.S. fax modem vendors will have to conform to the new ITU-T standards to sell their products in the international markets.

The confusion surrounding Class 2 modems probably will not disappear even if all modem manufacturers adopt the Class 2.0 standard. Pre-standard modems will remain in the distribution channel for some time and there is no guarantee that even the new Class 2.0 standard modems will be interchangeable. In the meantime, James Rafferty, president of Human Communications Inc., a telecommunications consulting firm, advises network supervisors to use proprietary, board-based fax modems such as Gammalink and Brooktrout that avoid Class standards altogether. While this solution may seem extreme, he recommends it for two reasons. First, most fax server software vendors have capitalized on the rich, API-based features within these proprietary fax modems. Second, proprietary fax modems provide better transmission buffering of inbound and outbound data traffic that better supports the heavy usage and reliability requirements typically seen on network configurations.

RightFAX, an OS/2-based fax server software vendor for network users tells its customers that its software works only with Gammalink and Brooktrout modems. RightFAX even sells these modems, which have their own proprietary device drivers, since they are sometimes difficult to find through retail channels. Fax-Works (reviewed in this month's DOT EXE) supports the same proprietary modems along with a number of other types and models including Class 1 and Class 2 standards.

Joe Cracchiolo, vice president and co-founder of RightFAX, explains their decision to support only proprietary standards: "We used OS/2 as our platform for a network fax server product because of the dependability of OS/2's multitasking and multithreading capabilities. We decided to mate our product with fax modems that offered a similar high level of reliability and stability."

When designing a networked fax strategy for your corporate site, choose the software first. With software in hand, you can then use the software's compatibility list to select your fax modem to meet the demands of your network environment. ♦

Steven Levenson is a frequent contributor to computer publications and the author of several books on NetWare, OS/2, and Windows. He can be reached on the Internet at stevenl@panix.com.

OS2 EXPRESS

THE QUICKEST WAY TO ORDER OS/2 APPLICATIONS, TOOLS, BOOKS, & ACCESSORIES.

Warp Connect LAN/Client

See page 34 for details

Warp Connect will get you where you need to be, when you need to be there. Peer-to-peer networking is only the beginning. With an unprecedented level of cross-platform integration, Warp Connect lets you access not only IBM's own LAN Server product and other Warp Connect systems, but the most popular network systems and protocols: Novell NetWare, TCP/IP, LANtastic, Windows for Workgroups, even NT Advanced Server. In short, Warp Connect provides the ideal vessel for exploring the computer universe.



Bloodhound (SearchManager 2)

April Sale Price

\$89

IBM

"Bloodhound" (aka SearchManager/2) is probably the most powerful text finding tool you can buy for a PC. Once you've indexed your files, this native 32-bit OS/2 utility and its Thesaurus will find and retrieve with lightning speed files in five languages containing the words, linguistic variations, and synonyms you're looking for.

See page 34 for ordering information

SmartSuite 2.0 for OS/2

\$149

SmartSuite for OS/2 takes full advantage of 32-bit technology and the object-oriented OS/2 Workplace Shell to provide a unique, unparalleled combination of powerful multitasking and multi-threading applications.

See page 38 for ordering information

When you see
this symbol



on an ad, you'll know you
can order through
OS2 EXPRESS

OS/2

OS/2 WARP with WIN-OS/2 (Full Pack)* \$113.95

Order number 262, A or B
IBM

The Fullpack is now available. The mandatory update to the Borg and OS/2 2.11 is finally a reality. Incredibly fast, fewer resource requirements, one-button install, Internet access—it's everything you have waited for. Engage!

OS/2 WARP* with WIN-OS/2 upgrade \$69.00

Order number 278, A or B MSR \$149.00

OS/2 WARP Connect LANversion* \$115.00

Order number 261 A (CD-ROM only)

OS/2 WARP Connect with WIN-OS/2, LAN version* \$149.00

Order number 263 A (CD-ROM only)

OS/2 WARP Version 3* \$69.00

Order number 251, A or B MSR \$129.00

*prices and availability subject to change without notice. Specify "A" for CD-ROM, "B" for 3.5" diskettes.



Warp-Back Again/2 Personal Bundle \$19.95

Order Number 369 MSR \$49.00
Computer Data Strategies

WinGrate \$10.00 Warp add-on \$5.00

Order Number 309 MSR \$20.00
DK Micro

Already bought Warp, but want Full-Pack functionality? WinGrate migrates your WIN-OS/2 environment to a format compatible with Microsoft Windows and prepares your system for Warp installation. All you need to upgrade OS/2 2.1 (Borg) are copies of OS/2 Warp version

BACKUP

ADSTAR Distributed Storage Manager/2 \$1,075.95

Order number 354 MSR \$1,295.00
IBM

Addresses your needs for asset protection and data availability in a distributed environment. It provides operational flexibility by allowing users to define their need for backup and archiving. It also provides productivity gains by automating a formerly labor-intensive process.

BACKUP

ADSTAR Ten additional back-up clients \$499.95

Order number 355 MSR \$595.00

Back Again/2 Personal \$34.95

Order number 370 MSR \$49.00

Computer Data Strategies



Back Again/2 3.0 Personal edition has all the features of our Professional edition, without the support for SCSI tape drives.

Back Again/2 Personal is the perfect solution for backup to floppy disk, magneto optical, and LANs. Includes "drag and drop" support, scheduling, and command line utilities so you can completely restore your OS/2 partition.

Back Again/2-Pro \$95.00

Order number 236 MSR \$149.00

Computer Data Strategies

Back Again/2-Pro is a graphical 32-bit backup program for OS/2. It supports backup to LANs, SCSI tape, and other removable media. Includes compression, backup scheduling, and command line utilities for complete disaster recovery.

Backmaster 1.1a for OS/2 \$65.00

Order number 129 MSR \$89.95

MSR Development

Backmaster is the 32 bit backup program that supports popular QIC 40/80 tape drives. New features include auto-verify, file save sets, DOS/Windows/OS/2 data exchange, enhanced disaster recovery utilities, support for high speed adapters and parallel tape drives.

BakupWiz \$95.00

Order number 171 MSR \$149.00

PCX

BakupWiz is the OS/2 solution for backup to SCSI tape, Bernoulli, Syquest, magneto optical, and tape auto-changers. Full support for EAs, long names, and networking is included. Your OS/2 system partition can be completely restored.

Cheyenne ARCsolo for OS/2 \$225.00

Order number 240 MSR \$295.00

Cheyenne Software, Inc.

ARCsolo is the first substantial native OS/2 backup solution. Designed with a WPS-like front end, it offers drag-and-drop functionality, multithreading, and an object-oriented approach.

NovaBack for OS/2 \$49.99

Order number 138 MSR \$149.00

NovaStor

NovaBack for OS/2 is a complete backup solution for all OS/2 workstations or networks. Support for OS/2 1.x and 2.x is shipped together. NovaBack supports more than 250 SCSI and QIC-80 tape drives.

BACKUP

Sytos Premium Backup & Disaster Recovery for OS/2 \$195.00

Order number 332 MSR \$299.00

Sytron

The standard in powerful OS/2 data protection. Sytos Premium for OS/2 advanced features include complete Warp and Lan Server 4.0 compatibility, disaster recovery, scheduling and the widest device support available.

FINANCIAL-BUSINESS

InCharge \$72.00

Order number 326 MSR \$79.00

Spitfire

In Charge is a full-function personal and small business financial system. It supports multiple sets of books and, within a set of books, supports all types of accounts and multiple currencies. In Charge provides a set of integrated systems for managing multiple-year budgets, accounts payable/receivable, property, securities, insurance, and tax data.

Check+ Financial Software \$89.95

Order number 369 MSR \$99.00



Computer Interface Corp.

Check+ Financial Software is an intuitive, fully graphical OS/2 software application that provides powerful financial management for the home and office. Features point-and-click interface, check printing, icon-driven color coded bill-paying reminder system, unlimited number of accounts, credit card tracking, user-defined income/expense analysis, automated bank account balancing, integrated budgeting, and more.

UTILITIES

"Bloodhound" April sale price \$89.00

Order number 215 MSR \$300.00

IBM

"Bloodhound" (aka SearchManager/2) is probably the most powerful text finding tool you can buy for a PC. Once you've indexed your files, this native 32 bit OS/2 utility and its Thesaurus will find and retrieve with lightning speed files in five languages containing the words you're looking for and linguistic variations and synonyms.

LAN version add-on \$199.00

Order number 285

Runs on LAN Server, Novell or IBM TCP/IP.

UTILITIES

ATS for OS/2

\$315.00

Order number 181
MHR

Advanced Task Scheduler for OS/2 is a production job scheduling utility that eliminates the need for human intervention during routine batch processing. ATS allows you to take complete control over how and when each of your scheduled programs will run.

Chron

\$89.00

Order number 184
Hilbert

Chron is an OS/2 PM application that will schedule other OS/2, DOS, or Windows applications to run at a specified time and a specified frequency.

CPU Monitor Plus

\$79.95

Order number 108

Bon Ami SoftWare Corp.
A premium performance and analysis package for OS/2. CPU Monitor Plus permits real time monitoring and control of CPU, RAM, disks and ports, and program and thread control for all OS/2, DOS, and Windows programs.



MSR \$129.95

CursorPower

sale price: \$7.00

Order number 153

MSR \$49.95

North Shore Systems

Redesign and resize arrow, wait, I-beam, and other cursors. Create new cursors or turn graphics, text, signatures, and company logos into cursors. Toolkit includes OS/2 and Windows versions on one disk.

DeScribe - Lights

\$25.00

Order number 217

MSR \$29.00

DeScribe Inc.

A unique, unobtrusive CPU activity monitoring tool. Takes up only one pixel of screen space at the bottom of the OS/2 screen. Acts as a thermometer of CPU activity identifying CPU overload, hung systems and other multi-tasking activity.

DeskMan/2 v 1.5

\$49.95

Order number 187

MSR \$79.95

Development Technologies

The essential Workplace Shell utilities. Dramatically improves the ability of corporations and users to get the most out of OS/2. Manage, secure, backup, and migrate the WPS; get organized with virtual desktops; more.

UTILITIES

GammaTech File Secure for OS/2

\$34.95

Order number 111

MSR \$39.95

SofTouch Systems, Inc.

Encrypt your most precious corporate asset—your company data! Using the latest data encryption techniques available*, GammaTech File Secure protects sensitive data from unauthorized viewing. Files are encrypted using unique file keys that cannot be replicated. Data can be obliterated using techniques that conform to U.S. Department of Defense 5220.22-M specifications. (*This product's use of Data Encryption Standard algorithms means its sale, resale, or use outside the U.S. and Canada is expressly prohibited).

GammaTech File Star

Introductory price: \$59.00

Order number 362

MSR \$99.00

SofTouch Systems, Inc.



Manipulate all your disk files with a drive window, a directory window, and two file windows within a single session. Browse files with your favorite browser or viewer; ZIP files to save space; monitor free space, swapper size and RAM size dynamically.



GammaTech File Star Ten Pak

Introductory price: \$449.00

Order number 367

MSR \$799.00

SofTouch Systems, Inc.

GammaTech Power Pack for OS/2

\$59.95

Order number 110

MSR \$69.95

SofTouch Systems, Inc.

Power Pack is a PM-based application which launches applications and executes lengthy keystroke operations with a couple of function keys. It also includes a sophisticated editor to create, delete, or modify OS/2 INI files and the Extended Attributes associated with your data files. Supports both ASCII and hex. Enhanced screen saver with "hot" corners included with this offer.

GammaTech Utilities for OS/2 Version 3.0

sale price: \$99.00

Order number 109

MSR \$149.00

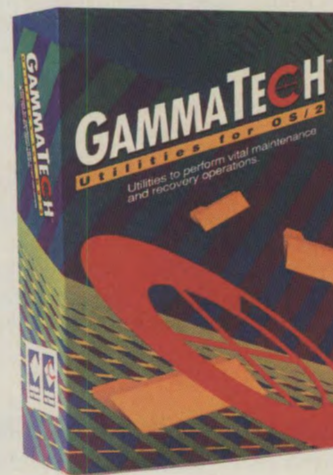


SofTouch Systems, Inc.

Performs FAT and HPFS optimization, file undelete, and desktop backup. PMand command line utilities perform disk analysis, recover corrupted files, back up/repair boot sectors, and include a sector editor. Drives greater than 2 GB supported.

What!? You don't have GammaTech Utilities?

That's like skydiving without a parachute!



SofTouch Systems, Inc.'s

GammaTech Utilities

Performs FAT and HPFS optimization, file undelete, and desktop backup. PM and command line utilities perform disk analysis, recover corrupted files, back up/repair boot sectors, and include a sector editor. Drives greater than 2 GB supported.

GammaTech Utilities for OS/2 Version 3.0

sale price: \$99.00

Order number 109

MSR \$149.00

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)
FAX (612) 823-6267 INTERNATIONAL 1-612-823-6255

UTILITIES

IBM AntiVirus/2 \$85.00

Order number 233 MSR \$89.95
ISSC

IBM AntiVirus/2 uses new "neural network technology" developed by IBM Research scientists to detect previously unknown boot viruses and "learn" how to identify infected and uninfected sections of software, thus significantly reducing false alarms.

J&J Utilities for OS/2

sale price: \$39.95

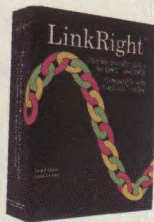
Order number 112 MSR \$49.95

J&J Computer Consulting
J&J Utilities v 1.5 is a collection of more than 20 utilities including file locate, HPFS and FAT file defragmenters, process control, automatic job scheduling, and more.

LinkRight 1.1 (w/cables): \$99.00

Order number 113 MSR (with cables): \$189.00
Rightware Inc.

This parallel/serial port file transfer utility package for OS/2 includes three versions: Presentation Manager, OS/2 command line, and DOS. Copy files to/from OS/2 and to/from DOS systems retaining EAs and long file names. Compatible with LapLink cables.



LinkRight 1.1 (w/o cables): \$65.00

Order number 114 MSR (without cables): \$110.00

OS/2 Essentials \$29.95

Order number 368 MSR \$39.95
Stardock Systems



OS/2 Essentials is a mini-application suite which includes: an advanced file manager, a screen saver with green monitor support, a workplace shell trash can, a directory space grapher, a taskbar, a multimedia arcade game and more. Most of the applications can use MMPM/2, are all multithreaded, and have slick PM interfaces.

OS/2 RM Lite \$67.00

Order number 335 MSR \$99.00
C.O.L. Systems Inc.

OSrm2 Lite is the OS/2 analyst's professional tool for monitoring performance and reporting on CPU, IRQ, Memory, Logical Disks, Physical Disks, Paging, Swapping, FAT/HPFS/HPFS386 caches, Applications, Threads, Files, IBM Lan Server and Lan Requester. Uses OS/2 REXX for reporting. Certified OS/2 and OS/2 LAN Ready.

UTILITIES

OS2Tree Lite \$27.95

Order number 141
Levine
OS2Tree Lite is what XTREE Gold is to DOS, what Norton Commander missed, and more. Dynamic graphic file management for OS/2 supporting both FAT and HPFS.

OS2Tree Pro \$89.00

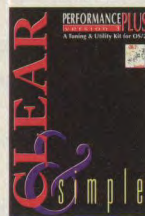
Order number 142
Levine
All the features of OS2Tree Lite plus LAN drive, main-frame file upload/download support, and one year of upgrades and product support.

PartitionMagic \$94.95

Order number 356 MSR \$129.95
Power Quest
PartitionMagic makes partitioning easy! Shrink, expand, and move any DOS or OS/2 disk partition without running FDISK or FORMAT. PartitionMagic also converts FAT partitions to HPFS while keeping all data intact.

Performance Plus for Warp \$27.00

Order number 330 MSR \$39.95
Clear & Simple, Inc.
Performance Plus is a system tuning and utility kit for OS/2 Warp. Features a new simple GUI, DOS/Windows application optimizer, bitmap viewer, swap monitor with audible warning, and more. Plus bonus OS/2 bitmaps.



Pegasus Resource Monitor sale price: \$50.00

Order number 168 MSR \$149.00
C.O.L. Systems
The first affordable, professional performance monitor of OS/2 version 2.x. Features: statistical data logging, pop up, exceptions, and a real-time graphical display.

PrntScrn \$105.00

Order number 154 MSR \$115.00
MITNOR Software
4 Integrated Utilities—1 Low Price! Copy any portion of any desktop image; import, export, view, print clipboard images and text; nine screen saver displays; date/time display. LAN installable; includes OS/2 2.x and 1.3 versions.

UTILITIES

PM Assistant \$99.00

Order number 183 MSR \$129.00
Utilis, Inc.
A comprehensive and integrated suite of utilities including hot-key access to applications, automatic application placement on screen, keyboard macros, task scheduling, screen saver, and password protection.



QuikSwitch for OS/2 \$29.95

Order number 180 MSR \$39.95
BitWare Consulting
Increase productivity by starting and switching between frequently used programs quickly by pressing key combinations (hot-keys). Works for DOS, Windows, and OS/2 applications. Speech-enabled, works with IBM's ICSS speech recognition software and most sound cards.

Stacker 4.0 for OS/2 and DOS \$99.00

Order number 337 MSR \$199.00
Stac Storage & Communications
Now put an average of 2.5 times as much data on your disk with the new Stacker 4.0 for OS/2 and DOS. And it's OS/2 Warp compatible.



System Sounds for OS/2 \$46.00

Order number 252 MSR \$59.00
BOCASoft
System Sounds gives your computer a voice by associating audio with system events and keystrokes. Includes more than one megabyte of professionally recorded sound effects in Microsoft audio format. Requires an audio card supported by MMPM/2 (included with OS/2 2.1).

Secure Workplace for OS/2 \$49.95

Order number 165 MSR \$59.95
Syntegration
The Secure Workplace for OS/2 is a collection of workplace objects and program utilities designed to provide workplace shell protection, setup, and support.

10-Station Enterprise Edition: \$459.95

Order number 166 MSR \$549.95

SuperType Master Library sale price: \$19.00

Order number 205 MSR \$29.95
IQ Engineering
SuperType Master Library contains 96 scalable, professionally-designed, display, text and headline fonts to add style and creativity to all your applications in OS/2.

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)
FAX (612) 823-6267 INTERNATIONAL 1-612-823-6255

UTILITIES

Linkwiz (aka UniBeam) \$179.95

Order number 239 MSR \$189.95
PCX

Linkwiz is an OS/2 and DOS/Windows File Transfer Utility with an up to 2 mbps transfer rate over parallel cable. It's extremely easy to install and use. Native OS/2 code supports Presentation Manager, extended attributes, long file names and 32 bit I/O. Includes both a parallel and serial cable.

WipeOut \$42.00

Order number 245 MSR \$59.00
BOCASoft, Inc.

WipeOut is a 32 bit screen saver for OS/2 featuring animated displays and video screen savers, integrated with multimedia audio, password protection, screen capture, and priority manager.

XFolder 19.95

Order number 292 MSR \$49.95

The Desktop Company
XFolder arranges and aligns desktop and folder icons. Select row, column, or perimeter layouts. Position all icons or selected icons. Multiple levels of "Undo". Save and restore favorite layouts. Customize icon spacing.

ZIPMAN for PKZIP/UNZIP for OS/2 \$32.00

Order number 345 MSR \$39.95
Software Builders, Inc.

Easy-to-use graphical interface. Ability to view more than one ZIP file at a time. Drag and Drop files to be zipped. View or execute any file in a ZIP file without first having to extract it.

ZipStream for OS/2 2.1 \$68.00

Order number 295 MSR \$79.95

Carbon Based Software
ZipStream is an OS/2 Installable File System (IFS) that mirrors access to existing OS/2 File Systems and simultaneously provides automatic transparent file compression and decompression services.

COMMUNICATIONS

EXTRA! for OS/2 v 2.0 Introductory sale price through 5/95:

Order number 358 MSR \$425.00

Attachmate
EXTRA! for OS/2 v 2.0 is a 100-percent 32-bit, object-oriented, multithreaded emulator, with extensive 3270 and APPC/CPI-C support, and full integration with the Workplace shell.

\$309.00

MSR \$425.00

COMMUNICATIONS

Communications Manager/2 v 1.11 \$310.00

Order number 280 MSR \$495.00
IBM

Comprehensive communications processor includes improved 3270 and 5250 terminal emulation and more APPC functions plus features such as Data Compression and Distributed Feature Workstation.

FaxForward call for pricing

Order number 206 MSR \$3,850.00

Computer Systems Integration, Inc.
FaxForward is an Interactive Voice Response/Fax communication system designed to provide a software development platform for creating integrated voice, fax, database, and host supported applications.

Fax/PM \$99.00

Order number 101 MSR \$150.00

Microformatic/American TeleRep, Inc.
Fax/PM is the award-winning object-oriented fax software for OS/2 and OS/2 for Windows. Use this 32-bit, multithreaded, multitasking Workplace Shell savvy software to send and receive faxes from any desktop machine.

FaxWorks for OS/2 \$99.00

Order number 102 MSR \$149.00



SofNet, Inc.
Faxing from any OS/2, Windows, or DOS application via a Class 1, Class 2, or CAS fax modem. The software also includes annotation tools to allow electronic markups, fax broadcasting, and multiple channel options.

10-user LAN version \$495.00

Order number 103 MSR \$699.00

HODstar™ Pager (single license) \$80.00

Order number 255 MSR \$85.00

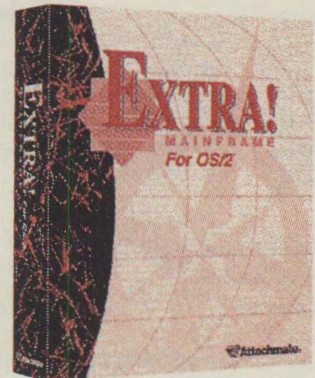
HODstar™ Support Solutions
Permits users to send messages quickly and easily to today's standard pagers. Also creates standalone programs to add pager functionality to any OS/2 batch file, REXX program, and commercial application. Supports all AT-compatible modems. Also available in site-wide and 'unlimited use' license.

**TO ORDER,
CALL 1-800-OS2-KWIK
(1-800-672-5945)**

FAX (612) 823-6267

**INTERNATIONAL
1-612-823-6255**

**“What^{We}
Have
Here Is **Failure**
To
Communicate”**



**What We Have
Here Is the
32-Bit
Solution**

Attachmate EXTRA! for OS/2 v 2.0 is a 100-percent 32-bit, object-oriented, multithreaded emulator, with extensive 3270 and APPC/CPI-C support, and full integration with the Workplace Shell.

**EXTRA! for OS/2 v 2.0
Introductory sale price
through 5/95: \$309.00**

Order number 358 MSR \$425.00

COMMUNICATIONS

HyperACCESS/5 V3.1 \$129.00

Order number 161 MSR \$199.00

Hilgraeve

Award-winning async comm program includes virus protection, host mode, on-the-fly un-zipping, 12 fast file transfer protocols, 17 terminal emulations. PC Magazine Editor's Choice.

KopyKat v1.0 \$129.00

Order number 162 MSR \$199.00



Hilgraeve

Anything you can do on an OS/2 PC, you can now do remotely through a modem or over a LAN. Displays the entire remote desktop in a window on your desktop.

LAN Distance Remote Version 1.1 Family of Products \$57.95

Order number 343 MSR \$69.00

IBM

The IBM Lan Distance family of products extends the "office LAN" to remote users. It allows you to transparently dial in and execute office applications as if you were physically connected to the LAN.

LAN Distance Remote AL Cert. \$49.00

Order number 344 MSR \$59.00

PM2YOU sale price: \$157.50

Order number 140 MSR \$255.00

Ridax

Control your OS/2 Desktop and Presentation Manager or character mode programs remotely from another OS/2 or Windows machine via dial-up modems, NetBIOS, APPC, TCP/IP, SPX, or Named Pipes.

PMCOMM 2.30 \$89.95

Order number 105 MSR \$99.95

Multi-Net Communications

Pmcomm is a full-functioned, 32-bit, GUI, PM communications program. It supports complete key re-mapping, REXX scripting, host mode, pop-up menus, various terminal emulations, and file transfer protocols.

RhinoCom \$179.95

Order number 336 MSR \$199.00

Rhintek

Advanced Workplace Shell technology, easy customization through extensive macros, REXX scripting, and native OS/2 code make RhinoCom a powerful tool for the sophisticated communications user.

COMMUNICATIONS

RUMBA for the Mainframe OS/2 version 3 \$365.00

Order number 286 MSR \$400.00

Wall Data Inc.

Easy to use OS/2 to Mainframe connectivity with drag and drop file transfer and paste linking of host and PC applications. Interface support for MS SNA Server, APPC and CPI-C 2.0, Novell Netware for SAA and TCP/IP.

UltiMedia Mail/2 \$99.00

Order number 247

IBM

IBM's new client/server OS/2 e-mail is a PM application built on SOM and TCP/IP. It supports multimedia attachments, integrates with Time and Place and Visual Document Library, and supports both VIM and MAPI.

PRODUCTIVITY

CA SuperProject \$489.00

Order number 208 MSR \$649.00

Computer Associates

CA SuperProject is a complete set of project management and presentation tools that are easy to use and learn.

Deluxe American Heritage Dictionary \$44.95

Order number 327 MSR \$59.00

DUX Software

The 200,000-word Deluxe Edition is the first completely new dictionary for the 90's. Containing nearly twice as many words as the Standard Edition, it is one of the largest and most authoritative software dictionaries you can buy.

Lotus SmartSuite Version 2.0 for OS/2 \$149.00

Order number 366 MSR \$439.00

IBM



The applications in the SmartSuite for OS/2 take full advantage of 32 bit technology and the object-oriented OS/2 Workplace Shell to provide a unique, unparalleled combination for simultaneously performing multitasking and multithreading.

MESA 2 \$189.00

Order number 328 MSR \$199.00

Athena Design

At last, an important new native OS/2 spreadsheet which takes advantage of SOM, OpenDoc, multithreading and Object Oriented User Interface. Also includes an object library so that you can integrate MESA objects into your own line-of-business applications.

PRODUCTIVITY

Person-to-Person for OS/2 \$177.00

Order number 277 MSR \$280.00

IBM

It's the ultimate in PC interactivity! Person-to-Person permits up to five users to interact with each other—in real time—while viewing the same screen contents. Share, annotate, and print to common window contents while discussing the work over the phone.

Power Translator Professional for OS/2 \$124.00

plus \$25 manufacturer's rebate

Order number 116A—German MSR \$199.00

Order number 116B—French MSR \$199.00

Order number 116C—Spanish MSR \$199.00

Globalink, Inc.

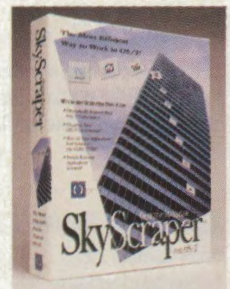
This powerful application provides idiomatically accurate full-sentence foreign language translations under OS/2. Get the most accurate translations available to computer users today, with subject-, industry-, or profession-specific dictionaries. Versions are available translating to and from Spanish, French, or German.

SkyScraper™, Desktop Manager for OS/2 \$36.95

Order number 299 MSR \$49.00

Binar Graphics, Inc.

Realize the full power of OS/2 with SkyScraper. This application gives you practically unlimited screen real estate. Virtual desktops at a single click; all your applications run maximized on their own desktops! Launchpad and many other features.



Tax Dollars '94 Final Version \$7.95

Order number 293B

BT&T Consumer Technology

This includes the final versions of all the IRS forms needed to file complete 1994 tax returns. Companion system to Tax Dollars '94 planning version.

Time & Place 2 \$85.00

Order number 282 MSR \$120.00

IBM

This LAN-based calendar displays daily, weekly or monthly calendars. It also features windows in which meetings can be scheduled, room or equipment reservations made, free time searched, priorities assigned, and due dates set. A memo function also allows you to relay event-specific messages between worksessions.

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

GRAPHICS

CorelDRAW! 2.5 for OS/2 2.0 \$149.00

Order number 100 MSR \$199.00

Corel Corporation

One 32 bit illustration package does it all: CorelDRAW!, CorelCHART, and CorelPHOTO-PAINT in one box, all optimized for OS/2. Plus a bonus CD-ROM with more than 12,000 clip art images and 250 fonts.



IBM CAD/3X \$95.00

Order number 172

MSR \$495.00

IBM

IBM CAD/3X is an easy to use CAD package. Yet it gives you more professional 2D features than any CAD under \$1,000. Recommended for plans, sketches, layouts, and more.

Richard Arder Explains \$21.00

Order number 319

MSR \$29.00

IBM CAD/3X

In this video tape, the well-known British CAD expert guides you through IBM CAD's powerful features, and compares it with other CAD programs.

IBM CAD Draws Cape Cod \$12.00

Order number 318

MSR \$15.00

SKPSolutions

75-page booklet takes you, step-by-step, through the process of drawing the floor plan of a mid-size home enabling you to understand the process and use the tools and techniques available with IBM CAD/3X.

Symbol Files for IBM CAD/3X

Architecture \$22.00

Order number 311

MSR \$29.00

Includes doors and windows, appliances, lumber, and kitchen and bathroom features.

Electrical/Electronic \$22.00

Order number 312

MSR \$29.00

Includes outlets, switches, fuses, resistors, capacitors, and reostats.

Piping/Welding \$22.00

Order number 313

MSR \$29.00

Includes elbows, trees, valves.

HVAC \$22.00

Order number 314

MSR \$29.00

Includes ventilation, heating and air conditioning ductwork from 12" to 48".

Mechanical \$22.00

Order number 315

MSR \$29.00

Includes screws, nuts and bolts and other fasteners.

Landscape \$22.00

Order number 316

MSR \$29.00

Includes trees and bushes, flowering plants and spas.

SYMBOLS BUNDLE \$75.00

Order number 317

MSR \$99.00

Save on all six files!!!

GRAPHICS

Graphic OS/2

\$395.00

Order number 204

MSR price: \$495.00

Scientific Endeavors Corporation

GraphiC is a library of "C" routines for creating every sort of technical plot. High resolution vector format for publication quality.

DEVELOPMENT TOOLS

BD/CX ("Baby Driver")

\$399.00

Order number 178

MSR \$499.00

Autumn Hill Software

BD/CX is the third generation of Baby Driver, Autumn Hill's printer toolkit. BD/CX provides printer support for your application, allowing you to print text and graphics on more than 900 printers.



CSet++ "Bundle" Promotion \$229.00

Order number 175A

MSR \$249.00

CD-ROM version only.

Includes CSet++, Experience CSet++, OS/2 for Windows, and Kase Set.

CD-ROM w/ Documentation \$249.00

Order number 175B

MSR \$279.00

C/C++ 10.0, CD-ROM Edition (CD-ROM with on-line documentation)

\$189.00

Order number 212

MSR \$199.00

Watcom

Professional C and C++ development environment for 16 and 32 bit DOS, Windows, OS/2, Windows NT, and Novell NLMS. Includes a comprehensive tool set with an IDE, debugger, C++ class browser, MFC support, and more.

DEVELOPMENT TOOLS

CA Realizer

\$79.00

Order number 207

MSR \$99.00

Computer Associates

CA-Realizer is the ultimate BASIC construction set for Windows and OS/2. The same CA-Realizer BASIC code that creates a Windows application ports instantly to OS/2.

CEnvi for OS/2 Sale price: \$10.00

Order number 156

MSR \$45.00

Nombas

A scripting tool to enhance or replace batch/REXX programming. Automate any session. Exploit 150 internal functions and the OS/2 API. Includes hundreds of samples and utilities.

GammaTech REXX SuperSet/2 for OS/2

\$69.95

Order number 174

MSR \$79.95

SoftTouch Systems, Inc.

SuperSet/2 contains more than 308 functions in 7 DLLs; extensions include support for EHLLAPI, LAN Server, NetBios, TCP/IP, and miscellaneous host utilities. It simplifies your life by eliminating the need to maintain poorly documented DLLs from disparate sources. 650-page reference manual included.

Hyperwise

\$215.00

Order number 284

MSR \$295.00

IBM

Hyperwise lets you create complete multi-media presentations with just the click of a mouse to link text, graphics, audio and video, create lists, tables, and other text elements without typing Information Presentation Facility (IPF) script tags. It's all done for you!

i++

\$319.95

Order number 346

MSR \$375.00

Virtual Software

i++ is a C++ class library kernel for IBM CSet++ V2.01 and Borland C++ V1.5. It includes an extensive exception class mapping all OS/2 error codes, 1/4 million-line online programming reference and more than 100 PM programming samples.

IPF Editor

\$139.00

Order number 264

MSR \$150.00

Perez Computing Services

IPF Editor, a 32 bit PM program, makes it easy to create on-line documents and context sensitive help for OS/2 applications without learning IPF.

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

DEVELOPMENT TOOLS

IPF Builder \$85.00

Order number 265 MSR \$99.00
Custom Design Software
IPF Builder is an essential tool for all OS/2 programmers. This specialized editor will save you time, money, and frustration when creating the source code for your INF and on-line HLP files.

KASE: VIP for OS/2 \$495.00

Order number 257 MSR \$1,995.00
KASE Systems
KASE: VIP for OS/2 is the industry-leading visual design and code-generation tool for developing OS/2 applications in C. Each purchase includes discount coupon for new products.

MENUET/CX \$499.00

Order number 179 MSR \$599.00
Autumn Hill Software
MENUET/CX is a C++ application framework for OS/2, WINDOWS and DOS. MENUET/CX was designed and developed under OS/2.

Notrix

Percussion Software
Notrix uses REXX to build Lotus Notes event-driven, server add-in applications. Manipulate Notes data with no Notes API or C programming.

Application Developer's Kit \$185.00

Order number 270 MSR \$199.00

Notrix Server Kit: \$1,450.00

Order number 269 MSR \$1,495.00

Objectpm

Raleigh Systems, Inc.
The first class library geared specifically for OS/2 and the Presentation Manager, Objectpm provides more than 200 classes of objects encapsulating windows, controls, graphics tools, forms, threads, and much more. Supports Borland C++ for OS/2 and IBM CSet++.

DEVELOPMENT TOOLS

C Set++ Version with Source \$349.00

Order number 119A MSR \$399.00

Borland Version with Source \$349.00

Order number 119B MSR \$399.00

C Set++ Version without Source \$199.00

Order number 119C MSR \$235.00

Borland Version without Source \$199.00

Order number 119D MSR \$235.00

OS/2 UCSD Pascal Development System \$275.00

Order number 267 MSR \$299.00
Cabot Software
The UCSD Pascal 32-bit professional development system is for Turbo Pascal users who want TP compatibility, a full 32 bit Pascal compiler, and links into OS/2's API technology. Key benefits include: UCSD Pascal links into the OS/2 API technology; Turbo Pascal compatibility; production of portable programming code; and value for money product, with a full range of programmers toolboxes.

Prominare \$589.00

Order number 361 MSR \$695.00
Prominare, Inc.



A PM programmers' tool for the creation of fully featured GUIs for OS/2. Acting as an extended resource editor, Prominare supports all OS/2 controls for all versions of OS/2, including Warp.

REXX Diagnostic Commander \$129.95

Order number 139 MSR \$150.00
Suitable Alternatives
Rexx Diagnostic Commander is a source-level, interactive REXX debugging tool. Set breakpoints, single-step instructions, Jump or Run to any instruction. Windows allow variables, monitoring, and alteration.

DEVELOPMENT TOOLS

RexxTools for OS/2 \$139.95

Order number 298 MSR \$149.00
Innovative Business Technologies, Inc.
Toolkit of two Rexx development tools. RexxPack compresses a Rexx command file. RexxComp creates an OS/2 exe from a Rexx command file providing secure code.

Rexx VIM: The VIM Toolkit for Rexx \$279.00

Order number 294 MSR \$295.00
Innovative Business Technologies, Inc.
Allows Rexx to access cc:Mail and Lotus Notes for message creation, addressbook activities, in-box automation, and other e-mail activities. Full VIM capabilities from within Rexx.

SourceSafe

One Tree Software
SourceSafe coordinates developers on a LAN, and tracks versions of source code modules and entire projects. And SourceSafe's PM and commandline interfaces provide easy access to your entire development system.

Single User: \$325.00

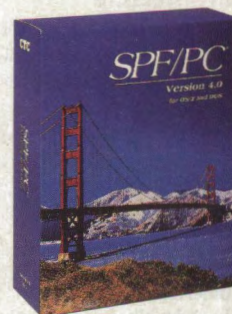
Order number 176 MSR \$395.00

Five User: \$1,295.00

Order number 177 MSR \$1,595.00

SPF/PC v 4.0 \$189.00

Order number 186 MSR \$295.00
Command Technology
SPF/PC is a powerful file manager and full-screen text editor that emulates IBM's mainframe ISPF/PDF, providing a familiar environment for mainframe programmers who are faced with the challenge of developing on a PC.



TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

DEVELOPMENT TOOLS

Unite Image Viewer Object Version 1.1

Order number 324 \$1,175.00
MSR \$1,200.00

Cirrus Technology

The first Document Image Viewer SOM developer's object specifically for OS/2. Ready for use with Watcom's VX-REXX, IBM's VisualAge, or as an API set. The viewer may be used for bitonal, greyscale and JPEG color image display, manipulation, and printing.

Unite Scanner Object Version 1.1

Order number 325 \$2,399.00
MSR \$2,500.00

Cirrus Technology

The first Scanner SOM developer's object specifically for OS/2. Ready for use with Watcom's VX-REXX, IBM's VisualAge, or as an API set. The scanner object may be used with select SCSI based devices, and includes the Unite Image Viewer Object.

VisiiParts Version 2.0

IS International



VisiiParts Version 2.0 is a set of high-quality GUI parts that enhance and extend the set of parts provided with VisualAge.

VisiiParts includes a synchronized list (multi-column list), a spin list and word-wrap list that displays list items in their entirety, thereby eliminating the need to scroll horizontally.



OS/2 Team Version

Order number 370 \$499.00
MSR \$595.00

OS/2 Single User Version

Order number 371 \$329.00
MSR \$395.00

VisualAge

Order number 281 \$1,595.00
MSR \$2,495.00

IBM

Client/server application development takes on new power with Visual Age, which includes visual programming tools, a library of reusable parts, distributed database support, and graphical user interface support. Includes IBM Smalltalk object-oriented programming environment.

VX-REXX for OS/2

Order number 211 \$95.00
MSR \$99.00

Watcom

Powerful and easy-to-use integrated environment for developing OS/2 2.x PM applications, including a project management facility, visual designer and debugger. New to this version are Notebooks, Containers, Sliders Pop-up menus, DDE, objects and more.



DEVELOPMENT TOOLS

Watcom VX-REXX Client/Server Edition Version 2.1

Order number 266 \$289.00
MSR \$ 299.00

Watcom

A visual development environment for OS/2. Powerful connection, query, and chart objects allow you to access several databases, manipulate data and chart results quickly and easily. Features include drag-and-drop programming; bound controls; professional multi-threaded, multi-windowed and drag-and-drop-enabled application development.

DATABASE

DB2/2

IBM

This industrial-strength database management system brings to your PC desktop and client/server LAN environment the function, reliability, and performance that users of DB2 for mainframes have come to expect—at an affordable PC price. Supports application access from OS/2, DOS, and Windows client workstations as well as NetBios and Novell/IPX/SPX communications protocols.

DB2/2 CD ROM

Order number 271A \$265.00
MSR \$425.00

DB2/2 3.5" diskette

Order number 271B \$265.00
MSR \$425.00

DB2/2, Client Server CD-ROM

Order number 272A \$1,495.00
MSR \$1,995.00

DB2/2, Client Server 3.5" diskette

Order number 272B \$1,495.00
MSR \$1,995.00

DATABASE

DB2/2 Product Library (Pubs only) IBM

Order number 342 \$149.95
MSR \$199.00

IBM

Hard-copy publications only; base set of books, plus programming and reference guides, query manager pubs, messages and problem determination guide, and master index.

DBExpert

Order number 363 \$479.00
MSR \$495.00

Designer Software, Inc.



Full-featured OS/2 database for users and developers. Create forms, reports, or complete applications without programming or SQL. Works with DB2/2, dBASE, and Oracle.

HODstar™ Supporter (100-user license)

Order number 256 \$650.00
MSR \$685.00

HODstar™ Support Solutions

Expands upon the Monitor product by adding call tracking. Features automatic call alarming, self-updating call queues, and support for HODstar Pager. Also available in single-user, site-wide, and 'unlimited use' license.

Manage-It!

Order number 182 \$115.00
MSR \$150.00

Baron Software Services

Manage-It! provides the Help Desk administrator with the necessary software tools to track incoming calls, produce statistical reports and maintain a knowledge base essential to the support desk.

SQL for OS/2 Version 3.2

Order number 213 \$295.00
MSR \$395.00

Watcom

Watcom SQL for OS/2 is a high-performance standalone SQL client/server DBMS for OS/2. Watcom SQL for OS/2 includes a variety of interfaces to access Watcom SQL from many popular OS/2, DOS, and Windows applications including embedded SQL application development with popular C/C++ compilers.

**TO ORDER, CALL 1-800-OS2-KWIK
(1-800-672-5945)**

FAX (612) 823-6267

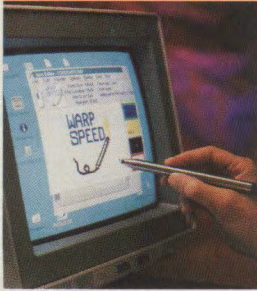
INTERNATIONAL 1-612-823-6255

HARDWARE

Warp Speed Light Pens

Warp Speed Light Pens, Inc.

The new Warp Speed Light Pen runs OS/2 fast. No more... "cursor, cursor where's the cursor?" Just touch and go, double click, drag and drop, fast and easy. The Warp Speed Light Pen frees up 100 square inches of desk space.



With ISA Adapter card Introductory Price

Order number 210

\$79.00

MSR \$199.00

NETWORKING

CorelSCSI

sale price: \$59.00

Order number 123

MSR \$129.00

Corel Corporation

With CorelSCSI you can daisy-chain up to seven disk, CD-ROM, WORM, and other SCSI drives to maximize the power of your desktop OS/2 machines.

Desktop Observatory

\$75.00

Order number 124

MSR \$179.00

Pinnacle Technology, Inc.

Remotely configure and password-protect desktops. Prevent deletes, copies, moves, dragging, shadows, or renames, or hide objects from view. Launch your own C or REXX routines on any network client, based on event.

HODstar Broadcaster (site-wide license)

\$210.00

Order number 302

MSR \$225.00

HODstar Support Services

Provide your employees with a quick and convenient way to keep up-to-date with your company's activities! Employees can browse current and older messages, cut and paste critical information such as phone numbers and schedules to their own applications, or print and save individual messages. Also available in 'unlimited-use' license. Uses the same database as all HODstar products.

Unlimited site-license

\$365.00

Order number 310

MSR \$375.00

NETWORKING

HODstar™ Monitor (100-user license)

\$269.00

Order number 254

MSR \$285.00

HODstar™ Support Solutions

HODstar's base-line product, Monitor, provides your support staff complete profiles and assignments for all resources on any network without giving users access to the actual servers. Also available in single-user license, site-wide, or 'unlimited use' license.

LAN Distance Remote Version 1.1 Family of Products

\$57.95

Order number 343

MSR \$69.00

IBM

The IBM Lan Distance family of products extends the "office LAN" to remote users. It allows you to transparently dial in and execute office applications as if you were physically connected to the LAN.

LAN Distance Remote AL Cert.

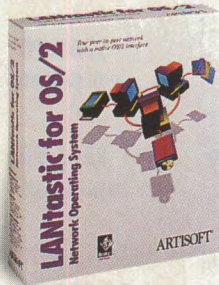
\$49.00

Order number 344

MSR \$59.00

LAN Server 4.0

IBM



LAN Server is easy to use and easy to grow, making it the best network operating system for small and medium sized businesses as well as large and corporate installations. Supports OS/2, Windows, and Macintosh, as well as most Ethernet and Token Ring adapters.

Lan Server 4.0—Entry, CD-ROM

\$525.00

Order number 273A

MSR \$795.00

Lan Server 4.0—Entry, 3.5" diskette

\$525.00

Order number 273B

MSR \$795.00

NETWORKING

Lan Server 4.0—Advanced, CD-ROM

\$1,475.00

Order number 274A

MSR \$2,295.00

Lan Server 4.0—Advanced, 3.5" diskette

\$1,475.00

Order number 274B

MSR \$2,295.00

IBM LAN Server Upgrades

Entry to Entry

\$295.00

Order number 275A (CD-ROM)

MSR \$395.00

Order number 275B (3.5 diskette)

Upgrades LAN Server Entry version 2.0 & 3.0 to LAN Server version 4.0

Entry to Advanced

\$1,050.00

Order number 307A (CD-ROM)

MSR \$1,570.00

Order number 307B (3.5 diskette)

Upgrades LAN Server Versions 1.0, 1.2, 1.3 and Entry 2.0 & 3.0 and 4.0

Advanced to Advanced

\$325.00

Order number 308A (CD-ROM)

MSR \$495.00

Order number 308B (3.5 diskette)

Upgrades LAN Server Advanced Version 2.0 and 3.0 to LAN Server 4.0

LANtastic for OS/2

\$115.00

Order number 287

MSR \$139.00

Artisoft, Inc.

LANtastic for OS/2 brings easy to use networking and peer-to-peer sharing to the OS/2 platform.

(5-user)

\$499.95

Order number 338

MSR \$629.00

(10-user)

\$875.00

Order number 339

MSR \$1,119.00

**TO ORDER, CALL 1-800-OS2-KWIK
(1-800-672-5945)**

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

NETWORKING

TCP/IP v2.0

Order number 276
IBM

\$165.00
MSR \$230.00

This is a collection of TCP/IP communication tools that allows you to establish an integrated computing environment between the most popular brands of workstations and hosts—IBM and non-IBM alike.

TCP/IP Programmers Tool Kit

Order number 341
IBM

\$410.00
MSR \$510.00

TCP/IP V2.0 for OS/2 — Programmer's Toolkit Media; 32-bit APIs, including sockets, SUN RPC, FTP API, and SNMP OPI functions; provides support for IBM C Set/2 compiler.

BOOKS

Advanced OS/2 Presentation Manager Programming

Order number 237

\$29.95
MSR \$34.95

Thomas E. Burge and Joseph Celi
(John Wiley & Sons)

Written by two IBM insiders, this definitive reference clearly explains OS/2 and its graphical user-interface, the Presentation Manager, and provides the reader with tips, tricks, and techniques in clear, concise C code.

Application Development Using OS/2 REXX

Order number 220

\$34.95
MSR \$39.95

Anthony Rudd
(John Wiley & Sons)

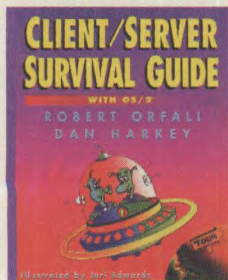
A concise and complete source of information necessary for developing applications using REXX in an OS/2 environment. Complete examples, devoid of superfluous details, make even the most complex concepts clear and easy to understand.

Client Server Survival Guide for OS/2

Order number 209

\$34.95
MSR \$39.95

by Robert Orfali and Dan Harkey



(Van Nostrand Reinhold)
Client/server is reinventing every aspect of computing from operating systems and communications to application architectures. This book helps you separate the theory from reality.

BOOKS

Client/Server Programming with OS/2 2.1, Third Edition

Order number 150

\$34.95
MSR \$39.95

by Robert Orfali and Dan Harkey
(Van Nostrand Reinhold)

A 1000+ page virtual encyclopedia, now fully updated for 2.1. Helps programmers write better and faster applications that take advantage of the 32-bit environment. All code has been fully retested.

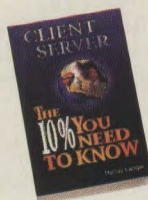
Client Server: The 10% You Need To Know

Order number 357

\$29.95
MSR \$29.95

by Randy Langel
(IBM)

This book is an in-house consultant that explains all the major business, organizational, political, process and technology issues of Client/Server. Common success factors are detailed and Rules-of-Thumb are presented.



Designing OS/2 Applications

Order number 238

\$29.95
MSR \$34.95

David E. Reich
(John Wiley & Sons)

The critical issue of basic OS/2 design applications is covered in full detail in this comprehensive book. OS/2 programmers will find coverage of programming and application design not documented anywhere else.

Developing C and C++ Software in the OS/2 Environment

Order number 202

\$34.95
MSR \$39.95

by V. Mitra Gopaul
(Van Nostrand Reinhold)

Dvorak's Guide to OS/2, Version 2.1

Order number 173

sale price: \$27.50
MSR \$45.00

by John C. Dvorak, David B. Whittle, and Martin McElroy
(Random House)

BOOKS

EGA/VGA: A Programmer's Reference Guide, 2nd Ed.

Order number 353

\$21.00
MSR \$21.00

by Bradley Kiewer
(McGraw Hill)

The classic reference for assembly language programming of VGA graphics hardware.

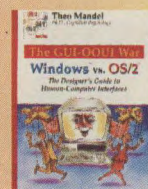
GUI/00UI War: Windows Vs. OS/2: The Designer's Guide to Human-Computer Interfaces

Order number 149

sale price: \$19.95
MSR \$29.95

by Nora Scholin, Martin Sullivan, and Robin Scragg
(Van Nostrand Reinhold)

The first comprehensive guide to user interfaces. Applying software logic and cognitive psychology, the book explores graphical and object oriented user interfaces.



Inside OS/2 2.1, Third Edition

Order number 195

sale price: \$24.95
MSR \$34.95

by Mark Minasi, John Little, Marlene Semple, Bill Camarda & Esther Schindler
(Prentice Hall)

The all-new and updated version of the OS/2 tutorial and reference. Contains extended coverage of advanced topics such as the new 32 bit graphics engine and enhanced Windows 3.1 compatibility. Command sequences and illustrations show how to use each command. Also provides expanded coverage of the OS/2 Workplace shell.

Inside OS/2 WARP, Version 3

Order number 351

\$32.95
MSR \$39.99

by Mark Minasi
(Macmillan Computer Publishing)

This tutorial and reference provides users with complete, step-by-step instructions and details that the OS/2 manuals lack. Users will optimize their systems and save time with this all-in-one guide to OS/2.

**TO ORDER, CALL 1-800-OS2-KWIK
(1-800-672-5945)**

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

BOOKS

Instant OS/2! Porting C Applications to OS/2 \$29.95

Order number 227 MSR \$34.95
by Len Dorfman
(McGraw-Hill)

Instant OS/2! gives C programmers a way to create programs and interfaces for DOS and OS/2 using the exact same source code! With Len Dorfman's platform-tested techniques, software developers don't even have to know how to use OS/2, much less how to program for it.

Mastering OS/2 REXX \$34.95

Order number 222 MSR \$39.95
Gabriel F. Gargiulo (John Wiley & Sons)



Gargiulo applies his considerable technical and teaching talents in this book with rewarding results. Emphasizing real-world usage instead of theory, his approach guarantees a quick and absolute mastery of REXX programming.

Maximizing OS/2 2.1 sale price: \$29.95

Order number 196 MSR \$39.95
by John Little, Toby Pennycuff, Marlene Semple & Stephen Gutknecht
(Prentice Hall)

The advanced guide to showing users how to take full advantage of OS/2's powerful features. Includes a disk containing OS/2 applications; provides task-oriented examples and covers the subjects of OS/2 connectivity, optimization, and organization.

Multimedia Madness! Deluxe Edition sale price: \$39.00

Order number 192 MSR \$55.00
by Ron Wodaski
(Prentice Hall)

Updated version to one of the best-selling multimedia titles! This book/CD-ROM set provides a complete introduction of both end users and programmers.

New Riders' Official Internet Yellow Pages, 2nd Ed. \$24.95

Order number 348 MSR \$29.99
by Maxwell
(Macmillan Computer Publishing)
This book is definitive guide to what is available on the Internet. It has over 10,000 listings, organized by topic and area of interest, and is the standard reference for all Internet users.

BOOKS

OS/2 2.1 Application Programmers Guide \$29.95

Order number 203 MSR \$34.95
by Jody Kelly, Craig Swearingen, Dawn Bezviner and Theodore Shrader
(Van Nostrand Reinhold)

Covers files, threads, pipes, and porting, plus such new concepts as CID (Configuration, Installation, and Distribution) and SOM (System Object Model). Disk included.

OS/2 2.1 Bible w/disk \$29.95

Order number 258 MSR \$34.95
by Peter Franken
(Abacus Books)
The executive's guide to working with IBM's OS/2. Tells you everything you want to know about OS/2 2.1 and more. IBM accredited.

OS/2 Extra! VIO, KBD, and MOU Special Functions Revealed \$17.95

Order number 232 MSR \$19.95
Edited by Lou Dorfman and Marc Neuberger.

OS/2 Online Book Collection \$34.95

Order number 283 MSR \$49.00
IBM
This CD-ROM contains technical documentation for IBM programs including LAN Server, various development tools, communications, and the OS/2 operating systems 2.0 and 2.1. All documentation files are in ASCII format and may be viewed using the IBMLibrary readers included on the disk.

OS/2 2.1 REXX Handbook, Basics, Applications and Tips \$25.95

Order number 148 MSR \$29.95
by Hallette German
(Van Nostrand Reinhold)
The most thorough and useful guide yet published on the use of REXX interpreters and compilers. Includes a complete basic REXX tutorial, plus specific techniques for applications development.

OS/2 Presentation Manager Programming for COBOL Programmers, Revised Edition \$34.95

Order number 223 MSR \$39.95
by Robert B. Chapman
(John Wiley & Sons)
Learn all the techniques and basic skills you need to create applications using OS/2 2.1, including the new 32 bit compiler and Presentation Manager.

BOOKS

OS/2 Presentation Manager GPI: Graphics Programming Guide to the 32-bit Operating System \$32.95

Order number 329 MSR \$36.95
by Graham C.E. Winn
(Van Nostrand Reinhold)
Introduction to simple test and graphics output; presentation spaces and device contexts; drawing primitives and attributes; fonts; bitmaps; color tables and palettes; coordinate spaces and transformation; clipping and regions; orders, elements and segments; correlation and boundary data accumulation; metafiles; presentation manager printing and plotting.

OS/2 WARP Bible with Disk \$29.00

Order number 322 MSR \$34.95
by Peter Franken
(Abacus Books)
The executive's guide to working with IBM's WARP. Tells you everything you want to know about OS/2 WARP and more. IBM accredited.

PC Users Guide to AS400 \$34.95

Order number 244 MSR \$39.95
by Henry W. Klierer & Bradley D. Klierer
(Van Nostrand Reinhold)
Helps enterprising PC experts hone their skills on IBM's premiere mid-range system.



OS/2 C++ Class Library: Power GUI Programming with CSet++ \$32.95

Order number 331 MSR \$36.95
by Law, Leong, Love and Tsjiu
(Van Nostrand Reinhold)
This one-stop reference and tutorial provides the best ways to use the IBM Class Library: User Interface that comes with the IBM C-Set/2 product. It covers functions, usage scenarios, code examples, and design factors for library features ranging from basic to advanced. Software developers and power users at all levels will benefit from its hands-on guidance to using the class library.

REXX Reference Summary \$19.95 Handbook

Order number 253 MSR \$27.95
(CFS Nevada, Inc.)
The second edition of the award-winning handbook is a 160-page, "keyboard-side" companion which details all of the instructions and functions in SAA REXX distributed with OS/2.

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

BOOKS

Stacker for OS/2 & DOS: An Illustrated Tutorial **\$17.95**

Order number 246 **MSR \$19.95**
by Lisa Heller
(Windcrest/McGraw Hill)

Stepping Up to OS/2 2.1 **\$14.95**

Order number 259 **MSR \$16.95**
by R.M. Albrecht & M. Plura
(Abacus Books)
For users upgrading from DOS to IBM's OS/2 2.1. From installation and configuration tips to your first encounter with the Workplace Shell, this book shows you the easy way to get started. IBM accredited.

Stepping Up to OS/2 WARP **\$14.50**

Order number 321 **MSR \$16.95**
by R.M. Albrecht & M. Plura
(Abacus Books)
For users upgrading from DOS to IBM's OS/2 WARP. From installation and configuration tips to your first encounter with the Workplace Shell, this book shows you the easy ways to get started. IBM accredited.

The Art of OS/2 2.1 C Programming **\$34.95**

Order number 221 **MSR \$39.95**
by Kathleen Panov, Arthur Panov, and Larry Salamone, Jr.
(John Wiley & Sons)
Learn how to use your imagination and creativity to exploit the full potential of OS/2. Drawing on their combined experiences in developing and supporting OS/2 for IBM, the authors show you how it's done.

The OS/2 2.1 **sale price: \$29.95** Corporate Programmer's Handbook

Order number 147 **MSR \$39.95**
by Nora Scholin, Martin Sullivan, and Robin Scragg
(Van Nostrand Reinhold)
This complete guide teaches a modular approach to quick and efficient writing of software. Likely trouble spots are covered; the authors' suggestions on effective programming will save considerable time and frustration.

The Ultimate OS/2 File Management Tool Kit **\$24.95**

Order number 224 **MSR \$29.95**
by Len Dorfman and Mike Stegman
(McGraw-Hill)
This one-of-a-kind book/disk combination gives OS/2 users the information and file management utility programs they need to organize their files quickly and easily. The bundled disk contains a complete version of OS/2Tree 1.3.

BOOKS

Using OS/2 2.1, Third Edition, Special Edition **sale price: \$24.95**

Order number 193 **MSR \$34.99**
by Barry Nance
(Prentice Hall)
Using OS/2 2.1 delves into networking, security, client/server applications, and top-notch performance tuning. Power users will find in-depth coverage of optimization, configuration, and software integration with OS/2.

Using OS/2 WARP, Special Edition **\$24.95**

Order number 350 **MSR \$29.99**
by Barry Nance
(Macmillan Computer Publishing)
This is the first and foremost book on IBM's new personal operating system, designed as part of the OS/2 Family. Readers will quickly get productive in the new environment through clear lessons and expert tips and techniques.

Using the Internet, Special Ed. **\$32.95**

Order number 347 **MSR \$39.95**
by Mary Anne Pike
(Macmillan Computer Publishing)
Using the Internet is a comprehensive guide to exploring the resources and tools available on the world's largest and fastest-growing network! This international best-seller contains everything users need to get connected and get productive online. Bonus PC and Mac CD-ROM included.

WIN FUNCTIONS: **sale price: \$14.95** OS/2 Quick Reference Library, Volume 1

Order number 201 **MSR \$19.95**
by Nora Scholin
(Van Nostrand Reinhold)

Writing OS/2 2.1 Device Drivers in C, Second Edition/Updated and Revised **\$34.95**

Order number 146 **MSR \$39.95**
By Steven J. Mastrianni, Foreword by John Soyryng
(Van Nostrand Reinhold)
The update of this popular guide provides programmers and developers with the skills they need to write bug-free device drivers and get applications up and running.

BOOKS

Writing OS/2 REXX Programs **\$34.95**

Order number 225 **MSR \$39.95**
by Ronny Richardson
(McGraw-Hill)
Comprehensive and easy-to-follow, this much-needed guide gives readers—even those who are new to REXX—the tools to construct programs of varying levels of sophistication.

Writing VX-REXX Programs **\$34.95**

Order number 230 **MSR \$39.95**
by Ronny Richardson
(McGraw-Hill)
This book/disk combination tells OS/2 programmers and developers everything they need know to use the WatcomVX-REXX language to create REXX programs that have a visual interface. Written with the full support of Watcom, it's an essential guide for anybody who has purchased the VX-REXX program but needs more "how to use it" information than the manual provides.

Your OS/2 2.1 Consultant **sale price: \$15.00**

Order number 191 **MSR Price: \$24.95**
by Herb Tyson
(Prentice Hall)
The ultimate end-user consultant. Tyson provides tips, tricks, and troubleshooting techniques for IBM's popular operating system.

Your OS/2 Version 3.0 WARP Consultant **\$19.95**

Order number 352 **MSR \$25.00**
by Herb Tyson
(Macmillan Computer Publishing)
Everything readers want to know about OS/2 and didn't know who to ask! This is the ultimate end user consultant, with all the tips, tricks, and troubleshooting available.

MULTIMEDIA

MIDI Renderer **\$63.95**

Order number 155 **MSR \$129.95**
Diacoustics
Good-bye, FM synthesis! MIDI Renderer, a user-modifiable software synthesizer, produces CD-quality digital .wav files from MIDI music files. Uses existing audio card. OS/2, Windows, and DOS on CD-ROM.

TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

FAX (612) 823-6267

INTERNATIONAL 1-612-823-6255

A Scan's Gotta Do What A Scan's Gotta Do.

Cirrus Technology's

UniteLite is a work-

place shell enabled

imaging product for

OS/2 2.1 and WARP.

Advanced, yet easy-to-

use features: scan,

view, organize folders

and print.

UniteLite **\$245.00**
Order number 289 MSR \$295.00

GAMES

SimCity Classic for Unix and OS/2 \$39.00

Order number 288 MSR \$69.95
DUX Software Corp.

A full native, 32 bit version. SimCity gives you the keys to the city. The rest is up to you. You'll need to take action against monsters, earthquakes, pollution, crime, traffic gridlock and much more. The sounds, colors and actions are irresistible.

Trickle Down sale price: \$5.00

Order number 297 MSR \$29.95

MultiGrain Solutions

Trickle Down challenges the creativity of children and adults alike to develop strategies that defeat its crafty artificial intelligence and still have plenty of fun.

OS/2 Blackjack 1.0 \$17.95

Order number 242 MSR \$49.95

Reed Software

Written by a former Las Vegas Casino Pit Boss, OS/2 Blackjack is easy for the beginner to play, yet challenging for the advanced player. Choose from a variety of options for the rules of the game to simulate the house rules of your favorite casino.

OS/2 Poker 1.0 \$17.95

Order number 268 MSR \$49.95

Reed Software, Inc.

OS/2 Poker is two games in one. The Video Poker game is just like playing a real casino video poker machine. The Interactive Poker game lets you play your cards against the Dealer's. A variety of options are available including selecting your favorite color scheme, and viewing statistics about your play. Sound effects can be turned on and off.

WORD PROCESSING

Clearlook \$172.00

Order number 296 MSR \$199.00

Clearlook

Developed exclusively for OS/2, Clearlook's cellular word processor gives users significant document processing capabilities. Invoke the flexible format control via an unlimited number of text areas and cells.

DeScribe 5.0 CX Standard Edition \$169.00

Order number 199 MSR \$179.00

A full-featured, native 32 bit word processor. Superior multitasking, multithreading and Workplace Shell integration provide speedy results. First Look includes 5.0 software and 4.0 documentation free installation support and access to Pay Support Services. Automatic upgrade to DeScribe 5.0 Final Release.

WORD PROCESSING

DeScribe 5.0 Subscription Edition \$289.00

Order number 198 MSR \$299.00

DeScribe, Inc.

Includes complete software and documentation, plus free upgrades and support through Dec. 31, 1995.

DeScribe Showcase '95 \$44.95

Order number 364 MSR \$49.95

DeScribe, Inc.



The DeScribe Showcase '95 CD ROM features full versions of the award winning DeScribe Word Processor 5.0 for OS/2, Windows, NT, and Windows '95.

Technical support is available at an extra charge. All products expire on 12/31/95. No guarantees and no money back refunds. All product sales are final.

DeScribe 5.0 User's Guide \$44.95

Order number 365 MSR \$49.95

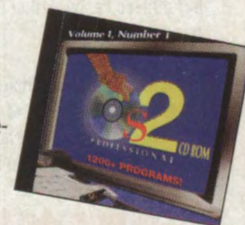
Que Books

CD-ROM

OS/2 Professional CD-ROM \$20.00

Order number 163

More than 1,200 OS/2 shareware, freeware, demoware programs, tools, and scores of OS/2 resources.



Client Server: The 10% You Need To Know \$210.00

Order number 323 MSR \$249.95

by Randy Langel (IBM)



The book or multimedia CD-ROM are in-house consultants that explain all the major business, organizational, political, process and technology issues of Client/Server.

Common success factors are detailed and Rules-of-Thumb are presented.

**TO ORDER,
CALL 1-800-OS2-KWIK
(1-800-672-5945)**

FAX (612) 823-6267

**INTERNATIONAL
1-612-823-6255**

PIM

Arcadia Workplace Companion V. 2.0

\$89.00

Order number 333

MSR \$149.95

A 32-bit workplace shell aware integrated personal information manager. In addition to a full-featured calendar and clock with event scheduling and reminders. Workplace Companion is a suite of productivity tools including: a telephone/address book with contact management features, an appointment book and visual planner, a versatile to-do list, and a free-form notepad.

Arcadia Power Pak Ver. 1.0 \$29.95

Order number 334 MSR \$49.95

Arcadia PowerPak is an add-on tool for your IBM Works suite that creates programs for maintaining Works databases and schedules them according to your requirements.



Relish

\$69.95

Order number 320

MSR \$189.00

Sundial Systems Corp. Time management for the way you want to work. Drag-drop convenience. Desktop objects for common and customizable views. Everything hot-linked for maximum flexibility.



**When you see this symbol on an ad,
you'll know you can order through
OS/2 EXPRESS**

RAID SOFTWARE

EZ Raid Lite for OS/2

\$155.95

Order number 360

MSR \$195.00

Pro Engineering



This software RAID solution for OS/2 desktop systems features disk mirroring for realtime backups, disk striping for turbo-charged system performance and disk spanning for simplified data management. Works with all industry standard disk interfaces.

EZRAID Pro Version 2.0

\$625.00

Order number 127

MSR \$795.00

This high performance software RAID solution supports RAID levels 0, 1, 4&5 and spanning. Provides: increased performance, fault tolerance, manageability, and affordability.

IMAGING

Unitelite

\$245.00

Order number 289

MSR \$295.00

Cirrus Technology

Unitelite is a workplace shell enabled imaging product for OS/2 2.1 and WARP. Advanced, yet easy-to-use features: scan, view, organize folders and print.

OS/2 PRO MERCHANDISE

OS/2 Professional T-Shirt

\$12.00

Order number 130

White 50% blend, colorful OS/2 Professional logo. Adult size (XL) only.

OS/2 Professional baseball cap

\$7.95

Order number 131

Off-white cotton twill, purple brim with colorful OS/2 Professional logo.



OS/2 Professional Warp T-Shirt

\$10.00

Order number 291

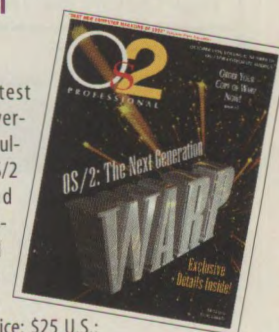
Warp yourself with the exclusive OS/2 Professional Warp Launch T-Shirt. Gold 100% pre-shrunk cotton. Adult size (XL) only.

OS/2 PRO MEDIA

OS/2 Professional Magazine

Order number 134

Keep up with the latest developments in the ever-changing world of the multitasking, multipiping OS/2 operating system, and save \$14.50 off the newsstand price. Not good enough? We'll throw in a free Borg poster with any paid subscription. Price: \$25 U.S.; \$40 Canada and Mexico; \$65 Overseas air.



ORDERING

PRICING

OS/2 Express prices its items below manufacturers' suggested retail. Prices are subject to change without notice. OS/2 Express is not responsible for any misprints. All prices expire May 15, 1995.

HOW TO ORDER

By phone:

Call our kwik-order desk at 1-800-OS2-KWIK (1-800-672-5945).

Canada/Overseas (612) 823-6255.

M-F 8AM-8PM, SAT 9AM-5PM CENTRAL. Please have the following information in front of you when you call:

- ✓ Quantity, name, and order number of each product you want to order
- ✓ Your VISA or MasterCard number (including expiration date)

- ✓ A complete street address for delivery if different than mailing address

By fax:

Fax your completed order form (be sure to include VISA or MasterCard number and expiration date) to: (612) 823-6267.

By mail:

Mail us your completed order form with check or money order (or indicate your VISA or MasterCard number and expiration date). Mail to: OS/2 Express, 4604 Chicago Ave., So., Minneapolis, MN 55407.

SHIPPING AND RETURNS

OS/2 Express ships available stock within 48 hours, but we cannot guarantee shipping or arrival dates. If we've made a

shipping error, we'll fix it. If a product is defective, we will assist you in getting a replacement from the manufacturer. You can return any non clearance product to us for refund or replacement within 30 days of the date you ordered it, but all returns must first be authorized by our RMA number (return merchandise authorization number). All returned merchandise must be complete and in its original packaging. Shipping charges are not reimbursable. \$5.00 restocking fee per returned item regardless of the reason.

SPECIAL NOTICE

OS/2 Express makes no representations about the functionality of products offered, and offers no guarantees or warranties, or support availability expressed

or implied. All product defects are the responsibility of the manufacturer. OS/2 Express is a reader ordering service of OS/2 Professional Magazine. Unless otherwise notified in writing, all sales are for commercial purposes only. OS/2 is a registered trademark of IBM. All other trademarks are the property of their respective owners. Jurisdiction: Montgomery County, MD.

SHIPPING

Normal shipping is Priority Mail and will be charged to your order. 0-5 lbs. \$8.00, 6-10 lbs. \$14.00. Continental U.S. only. Canada, international and rush orders—additional charges apply.

ORDER FORM

4/95

[illegible]**MAIL ORDER TO:**

OS2 Express
4604 Chicago Ave., So.
Minneapolis, MN 55407

FAX ORDER TO:

OS2 Express
(612) 823-6267

PHONE ORDER TO:

(800) OS2-KWIK
(800) 672-5945
International (612) 823-6255
M-F 8AM-8PM CST
SAT 9AM-5PM CST

ORDERED BY: (PLEASE PRINT CLEARLY)

Name _____

Company

Street Address

City State Zip

Daytime Phone

Fax Number

SHIP TO: (IF DIFFERENT THAN 'ORDERED BY')

Name _____

Company

Street Address (UPS cannot deliver to P.O. Boxes)

City State Zip

Daytime Phone

Fax Number

PAYMENT METHOD: (PLEASE DO NOT SEND CASH)

- ☐ Enclosed a check or money order in U.S. Funds. Checks must have your name preprinted. Returned checks are subject to a service charge for the greater of \$15 or maximum amount allowed by state law.

-

-
- MasterCard

Credit Card Number				

1

Expiration Date

Print Name _____

Signature _____



DOT EXE

Software for OS/2

Peer Pressure

LANTastic for OS/2

This long-awaited peer-to-peer network is a full 32-bit, multithreaded OS/2 application that packs surprising connectivity power into a low-cost package.

REVIEWED BY STAN MIASTKOWSKI

Be they in corporations, small businesses, or even the fabled SOHO (Small Office/Home Office), PCs seldom stand in solitary splendor anymore. Connecting multiple computers can pay productivity dividends. However, until recently, networking PCs running OS/2 has been a job for the deep pockets. IBM's LAN Server is a very capable and powerful network operating system, but its high cost and complexity has limited it to medium and large corporate environments. And OS/2's built-in peer-to-peer software has yet to prove itself. But with the release of LANTastic for OS/2, Artisoft has given OS/2 users a solid network operating system that offers ease of use, excellent performance, and the ability to connect to a wide range of non-OS/2 platforms. All this comes at a fair price to boot, starting at \$139 for a single-user license and going down from there.

Artisoft knows peer-to-peer networks: LANTastic is the number-one seller in this category. For the OS/2 version, the company didn't just cobble OS/2 abilities onto existing code. It started from scratch. The result is a full native 32-bit, multithreaded OS/2 application that takes advantage of OS/2's underlying power. Although LANTastic for OS/2 is technically a peer-to-peer network operating system (meaning any workstation has the potential to communicate with any other), Artisoft's research showed that most LANTastic installations use one (or more) PCs as central servers. Thus LANTastic for OS/2 stresses the server component. Each workstation logged into the LANTastic for OS/2 server gets its own application thread, delivering impressive performance.

A LANTastic for OS/2 system can be the central point of a net-

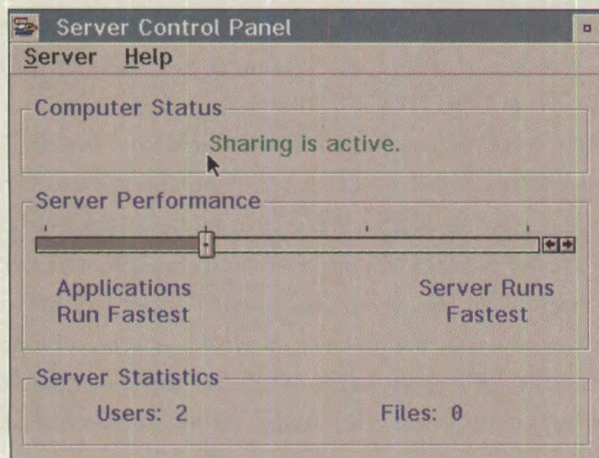


Figure 1: To give the server priority to processing network tasks, push the slider to the right; sliding it to the left gives priority to local applications.

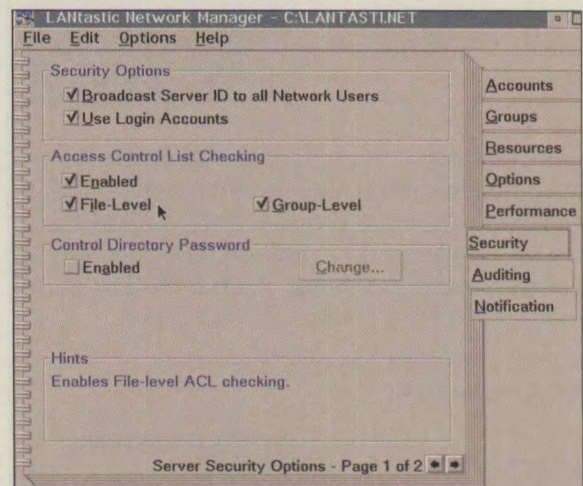


Figure 2: Network Manager gives you extensive control over LANTastic for OS/2, including user and group access to files and directories.



The Most Complete 32 Bit C++ Application Framework for OS/2

Objectpm is the first and only C++ class library to fully encapsulate OS/2 and the Presentation Manager from threads, the file system, and interprocess communications to the window and graphics systems and beyond!

Compare **Objectpm** with the IBM UI class library:

	Objectpm	IBM UI
Windows, dialogs, frames	✓	✓
CUA '91 controls	✓	✓
Drag & drop	✓	✓
Workplace shell support	✓	✓
Threads & semaphores	✓	
OS/2 files, long filenames	✓	
Profiles	✓	
Extended attributes	✓	
Image buttons	✓	
Multi-column list box	✓	
Multi-select combo box	✓	
Spreadsheet control	✓	
3D panels	✓	
Frame controls	✓	✓
MDI support	✓	
Presentation spaces	✓	
Printers	✓	
Metafiles	✓	
Graphics rendering tools	✓	
Retained drawing	✓	
Active graphics framework	✓	
Complete forms system	✓	
Formatted entry fields	✓	
Easy to use	✓	

Receive **Objectpm** for only \$235 or bundled with complete source code for only \$399. Available for Borland C++ for OS/2 & IBM C Set++. No royalties. For additional information including sample programs, call our BBS @ 216-831-4805 (9600,N,8,1).

To order, call OS/2 Express @
1-800-OS2-KWIK

RALEIGH SYSTEMS, INC.

23811 Chagrin Blvd.
Suite 344
Beachwood, OH 44122
216-292-7225

For more information circle #147



DOT EXE

work that consists of a variety of platforms. It can talk in both directions to other LANtastic for OS/2 systems, as well as to DOS and Windows systems running LANtastic 5.0 or 6.0. It can also access an Artisoft CorStream (NetWare 4.01-based) server. And Artisoft hasn't forgotten connectivity to the "big boys" either: included in LANtastic for OS/2 is support for SMB (Server Message Block)-based networks such as IBM's LAN Server, Microsoft's Windows NT Server, and Windows for Workgroups. Systems running LANtastic for OS/2 can access these systems, but SMB systems can't "see" the LANtastic for OS/2 server. On the NetWare side, there's no direct connectivity in LANtastic for OS/2, but it can co-exist in the same PC with Novell's NetWare Requester.

Getting Connected

LANtastic for OS/2, like its DOS and Windows cohorts, is easy to install. It works, of course, with Artisoft's own network interface cards (but read on for a cautionary note). LANtastic for OS/2 also supports NDIS (Network Driver Interface Specification), which means the program can run on most of the popular non-Artisoft network cards.

A first-time install of LANtastic for OS/2 is essentially a simple matter of answering a few questions such as what to name the machine, whether to share drives and printers, and where to store the LANtastic files. In my case, the PC already had LANtastic 6.0 installed in the DOS/Windows side of a dual boot system. Therefore, I told LANtastic for OS/2 to use the same settings as LANtastic 6.0 (stored in the STARTNET.BAT file). The installation process is fast and automatic. LANtastic for OS/2 comes on two high-density 3.5-inch disks, and the installation utility makes all the necessary changes to your OS/2 CONFIG.SYS and PROTOCOL.INI files.

After rebooting my PC, LANtastic loaded and started without a problem. But all was not as perfect as it first seemed. Workstations on my network couldn't see or access the LANtastic for OS/2 server, nor could the server see another LANtastic 6.0 server. It took a long session with Artisoft's free (albeit a toll call) support line to isolate the problem. At first, the technical support engineer thought it was a case of OS/2's finicky insistence that interrupts not be shared by multiple peripherals. But the problem turned out to be an old Artisoft AE-3 Network Interface Card. Although it's supposed to work with LANtastic for OS/2, the card I had was an early one. I replaced the AE-3 with a brand

DOT EXE

new Artisoft NodeRunner card and the problem vanished. (A word to the wise: Get a new network card.)

Network Management

Although LANtastic for OS/2 runs fine out of the box, serious networks require both management and tweaking. LANtastic's network management abilities are extensive and familiar to users of the DOS/Windows version, although wrapped, of course, in the easier-to-use Workplace Shell interface. You can control the whole network from a centralized location, giving individual users specific privileges, controlling passwords, and even specifying which days and hours users can log in to the server. LANtastic security is also extensive, letting you control individual user or group access to both directories and files. There's also built-in auditing with a wide range of options. You can, for example, keep a log of all logins, logouts, and print jobs. You can also set up disk space and CPU usage thresholds that broadcast a warning when system resources start to get low.

Performance Surprises

While running some informal benchmarks from a DOS workstation with LANtastic 6.0 to a server configured to dual-boot between LANtastic 6.0 and LANtastic for OS/2, I was surprised to find that network throughput was generally 10-15 percent slower with LANtastic for OS/2. The explanation came from one of the software designers. Without getting overly technical, LANtastic 6.0 is a real-mode, ring 0 application; LANtastic for OS/2 is a protected-mode ring 3 application. LANtastic for OS/2 is more tightly coupled to the processor and operating system, but data coming in through the network interface card (interrupt-driven real-mode) needs to transition to the protected mode. This causes the overhead that cuts performance slightly. If you require SMB support to access other networks, expect an additional 10-15 percent performance hit from the additional drivers. However, this slower throughput isn't as big a problem as it sounds. Because each workstation logged in to a LANtastic for OS/2 server gets its own thread, overall performance of a network based on a LANtastic for OS/2 server is considerably better than a DOS-based server, especially if your network has more than 10-15 workstations.

If you have more than two workstations logged in to a LANtastic for OS/2 server, you'll also want to tweak some server parameters to get maximum performance. A server control panel

SEND YOUR OS/2 PROBLEMS TO SCHOOL.

Why do our instructors encourage students to bring actual installation, configuration, networking, and programming assignments to class? **Because** they're committed to providing a real-life learning experience...experience that makes users, network administrators, and programmers more productive *immediately*.

SysEd's OS/2 curriculum consists of a complete range of 13 courses. They are intended for highly motivated individuals who want to become OS/2 professionals and are willing to work hard. Our intensive training provides state-of-the-art instruction; a solid foundation in OS/2 facilities and integrated operating systems (OS/2-DOS, WIN-OS/2) and insights into advanced topics such as REXX (SAA language and Visual), CM/2, DB2/2, LAN Server, TCP/IP, CSET++, and OS/2 Presentation Manager Programming.

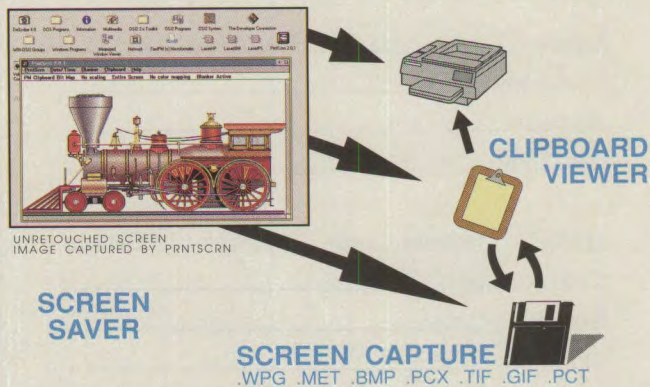
Public Classes are held regularly at SysEd's fully equipped classroom/computer facilities in New York City and in major American cities. Class size is limited to 10 students. Customized course offerings are available for on-site sessions at company installations. For more information, call David Shapiro at (212) 564-9147, 48, 49 or FAX: 212-967-3498.

SYS-ED®

35 West 35th Street, New York, NY 10001

For more information circle #190

SINGLE KEY-STROKE SCREEN PRINTING



- Quality Color or Black & White copies of color Desktop Images.
- Copy any portion of any image on the Desktop.
- Screen Saver prevents monitor burn-in.
- Date & Time Display for Time-Stamping images.
- LAN installable. Complete support for LAN attached printers.
- Economical! 4 Utilities for 1 Price! Entity licensing available.
- The most stable and reliable product available.
- Includes both OS/2 2.1/2.0 (32-bit) and OS/2 1.3 (16-bit) versions.

THE LEADER: **PrntScrnm**™ Screen Image Utility for OS/2



MITNOR Software
Phone: (918) 357-1628
Fax: (918) 357-2869



For more information circle #53

InnoVal Report on OS/2

Published Weekly

Will OS/2 be a success in the marketplace? It now seems likely that Windows 95 will be released later this year. Software producers, equipment manufacturers, customers, and channel businesses all need to know how to invest money and resources. The issue is not technology. It is market penetration. Marketplace commitment will be tied to expectations about IBM's ability to deliver sufficient market share. It will not be tied to the quality of OS/2.

In the months ahead, *InnoVal Report on OS/2* will focus on this marketplace. With commentary and analysis, we will examine what IBM is doing correctly. We will also discuss where IBM and others seem to be missing the mark. Along the way, we will direct your attention to other sources of valuable information and explore usability topics, new products, events, and services.

If you need to understand the OS/2 marketplace, you need to read *InnoVal Report on OS/2*.

☐ **Yes.** Enter my one-year subscription (52 weeks) to InnoVal Report on OS/2 for \$98.00.

Name _____

Company _____

Address _____

City, State, Zip _____

☐ VISA ☐ MasterCard ☐ Check ☐ Bill Me

Card Number _____

Expiration Date _____

Signature _____

Mail to: InnoVal Report on OS/2, 600 Mamaroneck Avenue, P.O. Box 1031, Harrison, NY 10528; or fax to (914) 835-3857 or call (914) 835-3838.

Outside U.S. please add \$18.00. All funds in U.S. dollars.

InnoVal Report on OS/2 is an independent publication of InnoVal Systems Solutions, Inc. InnoVal is a consulting firm with primary focus on OS/2. IBM and OS/2 are registered trademarks of International Business Machines Corporation. Windows is a trademark of Microsoft Corporation.

DOT EXE

lets you control the priority your PC gives to processing network tasks (over applications running in the server). But I also found that increasing the network task buffers made a significant difference in overall performance. The default value of 4K just wasn't big enough for a high-performance server. Increasing it to 16K made a dramatic difference and was easy to do. Of course, it almost goes without saying that you'll need capable hardware for serious server use. Although Artisoft recommends at least a 386DX with 8 MB of RAM, a 486/66 with 16 MB of RAM is a much better choice for a serious network.

The Choice

What's missing in LANtastic for OS/2? Well, for one thing it lacks the Scheduler and Exchange (mail and fax) components found in LANtastic 6.0. Both would be convenient, especially if your LANtastic for OS/2 server is also connected to a network that has LANtastic 6.0 workstations. Without the mail and fax features, you'll feel isolated (not an unusual feeling for some OS/2 users) from the other stations. Of course, as an OS/2 user you'll gain the benefit of long filenames on HPFS partitions. As with OS/2 DOS sessions, DOS and Windows users can access files on shared HPFS partitions so long as the filenames adhere to the 8.3 name limits. The bottom line is that LANtastic for OS/2 is an excellent value with sufficient performance to become the centerpiece of all but the largest networks. ♦

Stan Miastkowski is a writer and consultant who has covered the personal computer industry for the last 17 years from his base in the New Hampshire woods. He has been an OS/2 user since version 1.0, and was co-founder and publisher of the OS/2 Report newsletter. He can be reached on the Internet as stanm@bix.com.

AT A GLANCE

LANtastic for OS/2

Artisoft, Inc.

North Forbes Blvd.

Tucson, AZ 85745

(602) 233-5564; fax: (602) 670-7101

List Price: single-user, \$139; 5-user, \$629; 10-user, \$1,119; 25-user, \$1,919; 50-user, \$3,129; 100-user, \$5,009.

For more information circle #282

DOT EXE

FAXING WITH *finesse*

FaxWorks Pro's key features will maximize your faxing capabilities while minimizing the effort typically involved.

BY GEOFFREY HOLLANDER

It's always gratifying to work with a program whose features work as well as the developer claims—but it's an even greater pleasure when those features are as well considered as those in FaxWorks Pro for OS/2. FaxWorks Pro is a fully-enabled, 32-bit OS/2 application designed to work in the Workplace Shell, taking complete advantage of OS/2's user interface standards. If you know how to use the Workplace Shell, then you already know how to use FaxWorks Pro. The application installs its own printer driver object, making it simple to create faxes by printing from your OS/2, DOS, or Windows programs running on OS/2.

Drag and drop features enable you to change fonts easily in fax cover sheets, logs, and phone books. You can drag ASCII, BMP, PCX, or TIFF files right onto fax pages or send SOM-enabled document files by dropping them onto the FaxWorks Pro printer driver object. In fact, you can quickly customize the application's toolbar by dragging and dropping items from the application menu directly onto it.

Since many faxes are often sent to the same recipients, FaxWorks Pro has included an unlimited phone book capability—not only can you configure unlimited individual phone books, but each book may contain an unlimited number of entries. Entries hold last name, first name, company name, fax number, and voice number information that can be displayed by company or last-name order. Double click on any individual entry to send a single fax or highlight several entries for broadcast faxing. If your phone number book is stored in a database or contact manager, you can export the data to a CSV (Comma

Separated Values) ASCII delimited export file and then easily import the file into a FaxWorks phone book.

Fax transmissions can be scheduled for current or future transmission. The Fax Status Window, which shows fax channel activity and printer status during fax operations, is a powerful feature that is especially useful when the program is operating in the background. If you're a single user, manual send and receive functions ease occasional or random faxing. If you are part of a large, multi-

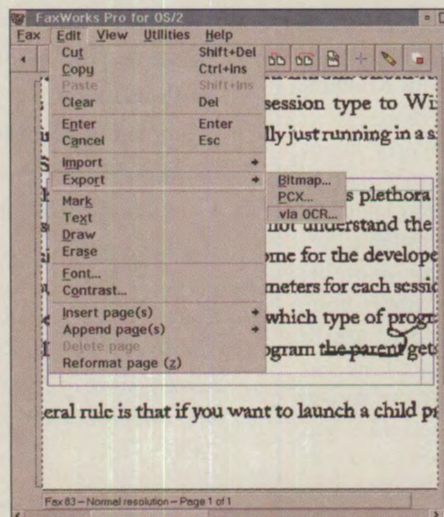
user system, FaxWorks Pro will support up to 96 channels, with an additional module.

The Fax Log stores both incoming and outgoing faxes so that they can be viewed, edited, or graphically modified before you either send, transmit, or print them out. In most cases, using the FaxWorks Pro printer driver allows any graphics, fonts, or drawings contained in your outgoing document to be included automatically. If, however, you wish to add a signature stored in PCX format, for example, simply drag the PCX file onto the viewed fax, adjust the size and position, and transmit. This is also a good way to implant a company logo or pertinent picture in anything you send.

Other editing options will help you insert, delete, swap, and merge fax pages in

any order required. You can even assemble pages from multiple applications. FaxWorks Pro also has included tools for text, graphics, and drawing annotation.

FaxWorks Pro uses a grayscale image-enhancement utility to increase readability, and will let you display fax images in pre-view (full page), standard (half page), large, or Bits mode where each bit in the fax image is visible. You can rotate fax images 90, 180, or 270 degrees and choose from PCX, DCX, TIFF, and



FaxWorks Pro allows users to view faxes in a variety of ways that permit on-screen markup and, using the software's OCR feature, saving of faxes in an editable text format.

It's Time To Get In Charge!™

In Charge! is a full function personal finance system for OS/2.

In Charge! supports:

- Multiple sets of financial books
- All types of accounts, from checking to stock margin
- Multiple currencies
- Multiple year budgeting
- Integrated insurance management system
- Powerful check printing facility

And much more!



In Charge! is available through OS/2 Express, or directly from Spitfire Software for only

\$79
+ Shipping

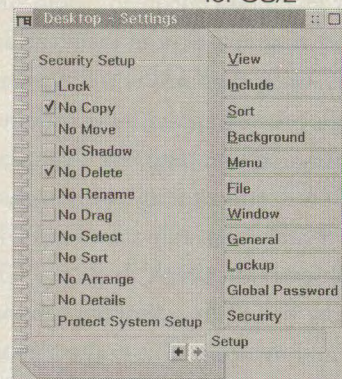


(404) 257-0187 • Fax: (404) 255-8032

For more information circle #279

**THE SECURE
WORKPLACE™**
for OS/2

Version 3 with Warp
Support Now Available



No need to worry about what your users will do to the desktop you spent so much time configuring. Now you can protect, setup, and support your OS/2 desktop while reducing support time and costs. We provide a collection of workplace templates and program utilities you use to construct a secure environment

- Provides a reliable protected interface for users.
- Prevents user from changing the objects on your Desktop.
- User or station specific workplace configurations.
- Central logon to workstation, Host, LAN and applications.
- A full set of workplace setup and administration tools.
- Integrated SOM based security templates.
- Eases migration from terminal or DOS based environments.
- Provides security control of remote workstations and laptops.



SYNTEGRATION
13241 Norton Avenue
Chino, CA 91710

Only \$59.95

Site Licenses Available
Visa, MC & Discover

Tel: (909) 464-9450
Fax: (909) 627-3541



Available
and Ready™
for IBM LAN



Available
and Ready™
for OS/2

For more information circle #197

DOT EXE

BMP file-viewing utilities. You can also connect a fax document back into text using the Optical Character Recognition feature from Calera. By default, a fax page is processed as an image, and while you can cut and paste a fax image directly into a word processor as a graphic, you can't edit or reformat the text itself. By using the OCR feature, you can save a marked region of any fax page, the whole page, or the entire fax to either the Clipboard or text file.

Be aware, however, that many fax documents are not amenable to OCR processing. If the type quality on the received fax is low, the conversion accuracy will decline. Our most accurate conversions were generated from faxes sent in *fine* (rather than *standard*) mode—an option most senders avoid since it increases transmission time and costs. In fine mode, the conversion missed only a few letters on an entire page of text. In standard mode, nearly every line contained errors.

If you've already installed Warp on your system, you can preview FaxWorks' features in the BonusPak. The BonusPak version lacks some of the whiz-bang features of the full version such as PCL printer emulation, OCR, and support for proprietary fax boards (see this month's *Hands On*).

All in all, the full version of FaxWorks is a great program—composed of key features that will maximize your faxing capabilities while minimizing the effort typically involved. Whether you run a small home office or work in a large networking environment, FaxWorks Pro will rapidly become an indispensable part of your business communication system. ♦

Geoffrey Hollander is the principal of Mail Pouch, a computer service bureau based in Lake Oswego, Oregon, that serves the direct mail marketing industry. He can be reached via CompuServe at 75202,3527.

AT A GLANCE

FaxWorks Pro for OS/2 v 2.0

Global Village Communications

1144 East Arques Ave.

Sunnyvale, CA 94086

(408) 523-1000; fax (408) 523-2407

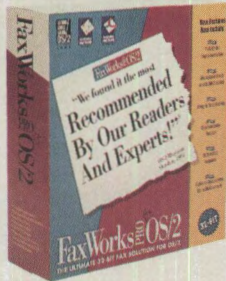
List Prices: Suggested retail price for single user is \$149. Network products range in price from \$199 to \$2,199. FaxWorks for OS/2 upgrades (depending on number of additional users purchased) run between \$49 and \$699.

OS/2 Vendor Council

"Growing the market for OS/2 and related products."

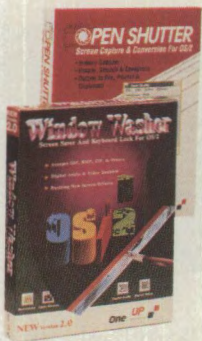
FaxWorks Pro for OS/2 by Global Village Communication

FaxWorks Pro for OS/2 give you "paperless fax" capabilities, for sending, receiving, viewing and printing faxes right from your PC. Send faxes from any OS/2, DOS or Windows application running under OS/2. Take advantage of the OS/2 Workplace Shell with full 32-bit implementation, SOM, Drag and Drop and OCR capabilities.



Mesa 2 for OS/2 by Athena Design, Inc.

A native application, Mesa 2 generates logical sequences with SmartFill, eases customization with object technology, and can integrate real-time data feeds.



Window Washer & Open Shutter by One Up

Window Washer is a screen saver for OS/2 which provides password protection and Full Screen keyboard monitoring. Version 2.0 features many exciting effects, digital audio and video. Open Shutter is a screen capture utility that allows users to capture desktop images, modify, then output to a printer, clipboard or a variety of file formats.

SkyScraper, Desktop Manager for OS/2 by Binar Graphics, Inc.

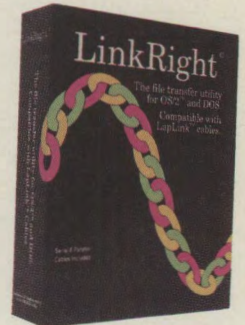
OS/2 POWER USERS! SkyScraper provides practically unlimited screen real estate. Virtual desktops in a click; all your applications run maximized on their own desktops.

Performance PLUS V3 by Clear & Simple

A Tuning and Utilities Kit for OS/2. Achieve *maximum* Warp speed! Simple enough for new OS/2 users, yet powerful enough for a techie! \$39.95

LinkRight by Rightware

LinkRight is a parallel port and serial port file transfer utility made especially for OS/2. The package includes a PM version, an OS/2 command line version, and a DOS version. Maintain EA's and long file names. Supports HPFS and FAT files. CRC checking to insure accurate transfers. Compatible with LapLink cables.



CPU Monitor Plus by BonAmi Software Corporation

Powerful performance and analysis tool that displays real-time CPU, RAM, Disk, Interrupt, COM port activity and more!



OnCmd xBase for OS/2 v1.1.5 by On-Line Data

OnCmd harnesses the power and the speed of OS/2, enabling you to create native 32 bit GUI applications in the familiar xBase data base language. OnCmd's user-friendly development environment comes with screen painter, report writer, and is client/server ready. Network and Unlimited Runtime Add-on licensing available.

Relish by Sundial Systems Corp

Relish - Innovative time management from Sundial Systems: Calender, To Do's, & Phone Book information always when & where you want it.

These products are certified for OS/2

Call (415) 491-1565 for more information on the Vendor Council.

Available through

OS/2 EXPRESS
1-800-OS2-KWIK

MicroWAREHOUSE

EGGHEAD SOFTWARE
North America's Software Eggsperts.

PROVANTAGE
1-800-336-1166

**INDELIBLE
BLUE**
1-800-776-8284

**Available
and Ready**
for OS/2

For more information circle #182

Rather Fly Than Walk?

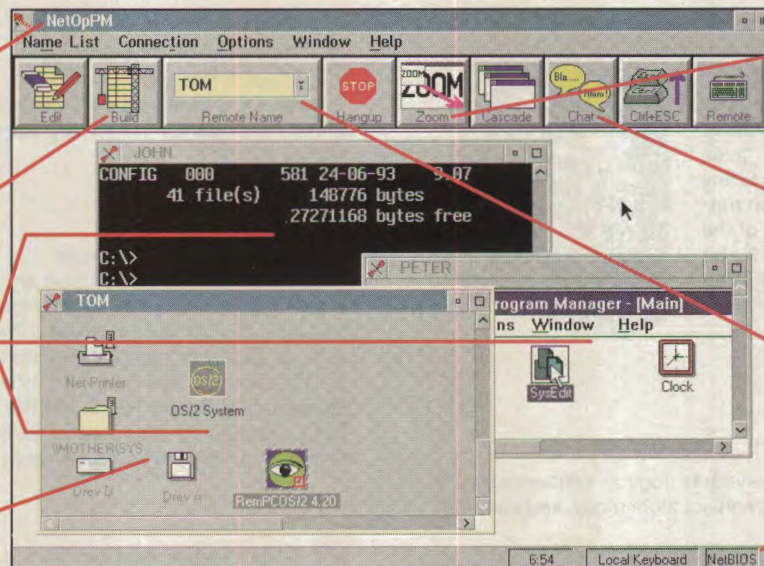
Easy! Pilot NetOp® Remote Control Solutions and Travel Anywhere Between OS/2, DOS and Windows

Remote control from your OS/2 desktop or from DOS/Windows.

Automatically create list of PCs available for remote control.

Remote control OS/2, Windows and DOS PCs simultaneously.

Support for Workplace shell/PM, OS/2 windowed/full screen, DOS box windowed/full screen, WinOS2.



View remote PCs windowed – or zoom in for a full screen view.

Chat feature, ideal for support situations.

Intuitive graphical user interface. Quick to install and easy to use.

Control PCs using any popular communication standard.

- Take over any PC from the comfort of your own seat
- Increase User Productivity
- Save Travel Cost

With a NetOp remote control solution you can reach any PC from your own desktop. View the remote PCs screen, control its keyboard and mouse. Transfer files back and forth. All done across your LAN, WAN or via dial-up.

Imagine the time you will save! Provide expert help and support to any workstation, configure servers from any distance!

A NetOp solution offers high performance and great stability, yet consumes a minimum of system resources. And it's quick to install and easy to use.

NetOp provides true cross-platform support, designed to work in today's world of changing operating systems and communication standards. A flexibility that protects your investment.

FREE TAKE A TEST FLIGHT AND SEE FOR YOURSELF! Hurry – trial version supplies are limited! Call or FAX now!



In America: Markham Computer Corporation
Tel (407) 394-3994 • Fax (407) 394-3844

Outside America: Danware Data A/S
Tel (+45) 44 53 25 25 • Fax (+45) 44 53 15 51

NetOp is a registered trademark of Danware Data A/S.

© Copyright 1994 Danware Data A/S.



MARKETLINE

Product News for the OS/2 User

SCOOPS

Dazzling Demo Tool Debuts

Hand held remote controls were once the highly specialized tools of the couch potato. But now, thanks to Mind Path Technologies and OS/2, infrared is making its way from the living room to the boardroom. Mind Path's IR55-FX for OS/2 is the first remote control designed to give OS/2 users, presenters, and trainers the freedom to add flair to any OS/2 application.

The IR55-FX hardware and software package offers

OS/2 users the ability to control mouse and keyboard functions as well as an array of special effects, from anywhere in a room. The remote also has five channel switchings to prevent interference with other remote control signals. This will make it possible, the company says, to operate a large number of remotes in one location with little chance of interference.

A software package is also bundled with the unit, featur-

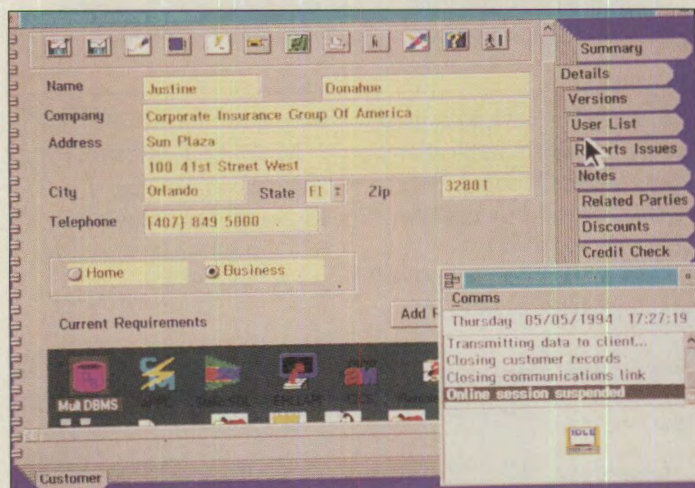
ing 20 different effects that can be incorporated into a presentation via the remote. Effects like pink, green, and yellow highlighting, checkmarks, and animated clip-art can all be added on the fly. Additional clip-art images are expected to ship sometime in Q3, Mind Path Technologies President Alex Tsakiris told *OS/2 Professional*.

The remote features the company's highly regarded MouseDisk control pad.

With the touch of the thumb the MouseDisk provides complete remote mouse control, giving the user one-hand control for click, double-click, and drag and drop sequences. Separate slide show buttons are also incorporated to further facilitate presentations.

Originally slated to ship late last month, the release date at press time, according to Tsakiris, has been pushed back to April 30.

New Products



The latest version of Intelligent Environment's client/server development tool, AM Version 4.4, exploits Warp's graphical and memory capabilities.

OS/2 in the AM

Intelligent Environments has released its client/server application development tool, AM Version 4.4. This latest version features expanded sup-

port of the CUA '91 control set including animation, multimedia and notebooks; optimization of Warp's memory saving capabilities; and full exploitation of Warp's graphi-

cal capabilities.

AM Version 4.4 is available at no cost to users with existing maintenance schedules. Contingent upon the chosen configuration, AM for OS/2 is priced between \$795 and \$8,400.

Intelligent Environments, 67 South Bedford Street, Suite 401-E, Burlington, Massachusetts 01803. (617) 272-9700, fax (617) 272-9300.

FAX checked

RightFAX was given the 1995 "Best of Fax" award by the American Facsimile Association for the performance of its RightFAX 3.5 software.

The software supports IBM, Novell, and Microsoft

networks and Windows, DOS, and OS/2 workstations. RightFAX 3.5 features binary file transfer, optical character recognition, and e-mail integration.

RightFAX retails for \$995. RightFAX, 4400 East Broadway, Suite 312, Tucson, Arizona 85711. (602) 327-1357, fax (602) 321-7456.

Building bridges

Attendees of February's SD 95 West trade show in San Francisco got a preview of two versions of TechBridge Builder for OS/2 Release 1.2 that offer OS/2 Warp support.

The OS/2 version features master detail data display,

MARKETLINE

notebook control use within a form, and automated display of 3D business graphics in query form.

The Enterprise version allows maximum access to all databases and retails for \$2,850 (US)/\$3,850 (CAN). The Bronze version, offering access to local DB2/2 databases, costs \$1,250 (US)/\$1,750 (CAN).

TechBridge Technology Corporation, Royal Bank Building, Suite 1301, 5001 Yonge Street, North York, Ontario, Canada M2N 6P6. (416) 222-8998, fax (416) 222-0168.

Backup in a backpack

Parallel Storage Solutions now offers a portable backup solution with its PMCS-1000 Backup System. PMCS-1000 is a 2 GB, 3.5-inch mini-cartridge tape system housed in a portable mini-chassis with an internal auto-sensing power supply. The software connects to a computer via parallel or



Parallel Storage Solutions' portable backup system, the PMCS-1000 offers both parallel and SCSI port connection for 2 GB backups.

SCSI port.

The PMCS-1000 Backup System features the PMCS-1000, mini-data cartridge, parallel and SCSI cables, and a choice of PSS software packages for use with DOS, NetWare, OS/2, QNX, UNIX/XENIX, or Windows.

The PMCS-1000 Backup System sells for \$1,295.

Parallel Storage Solutions, 116 S. Central Avenue, Elmsford, New York 10523. (914) 347-7044, fax (914) 347-4646.

Legent

Legent Corporation recently announced the availability of its Prevail/XP-Automation Point for HP-UX. The release incorporates Hewlett-Packard's OperationCenter software, providing a network-oriented automation implementation and

management solution for mainframe and UNIX environments. Through a licensing agreement with Simware, Legent now supports Novell NetWare. The company has also reached an agreement with iX Corporation that allows user access to REXX scripting language as a common enterprise-wide automation language.

Prevail/XP-Automation Point for HP-UX provides a

single focal point for all automation mainframe activity distributed by UNIX networks and PC LAN environments. It features access to UNIX, NetWare, OS/2, DEC, VM, and MVS servers.

Prevail/XP-Automation Point for HP-UX is priced at \$400 per server. The combined product costs \$30,000.

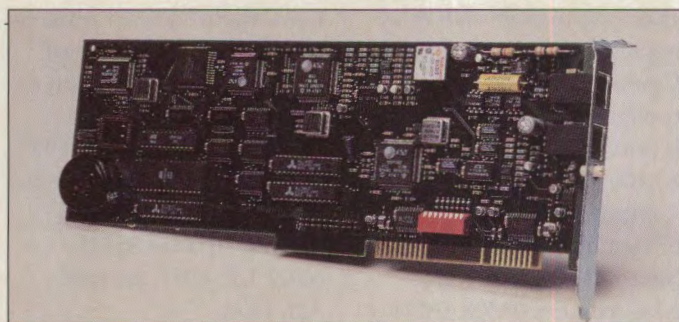
Legent Corporation, 575 Herndon Parkway, Herndon, Virginia 22070-5226. (703) 708-3186, fax (703) 708-3209.

Ovation triplets

Merisel now distributes Proxima's Ovation+ LCD



Proxima's Ovation+ LCD panels feature 600x800 resolution and offer built-in audio as an option.



Multi-Tech's V.34 SVD MultiModem PCS supports voice and data communication.

Internal audio/visual

Multi-Tech Systems is now marketing an internal simultaneous voice and data modem, the V.34 SVD, Multi-ModemPCS/c.

To address the needs of the desktop video conferencing market, the new modem fea-

tures Multi-Tech's "Talk Anytime" capability for use with a standard telephone. Also available is the MEPCS software package for Multi-Tech SVD modems, which includes the MultiExpressPCS answering machine software featuring a "Virtual

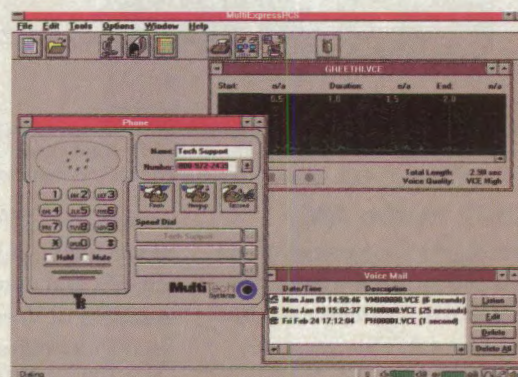
Modem" driver, MultiExpress fax and data communications software, and Future Labs' TALKShow document conferencing software.

The modem retails for \$499 and the MEPCS SVD soft-

ware retails for \$199.

Multi-Tech Systems, Inc., 2205 Woodale Drive, Mounds View, Minnesota 55112. (800) 328-9717, fax (612) 785-9874.

For simultaneous voice and data exchange, Multi-Tech Systems also offers MEPCS for use in a desktop video conferencing set up.



MARKETLINE

panels in three models: the Ovation+ 840, 842, and 846.

The 840C (Merisel SKU#33605) features an active matrix display panel (8.4-inch diagonal) for small audiences. The 842C (Merisel SKU#33380) adds built-in video (NTSC, SECAM, and PAL) and audio support. The Ovation+ 846C (Merisel SKU#32603) features a 10.4-inch diagonal active-matrix display as well as built-in video/audio.

Each LCD panel also features 600X800 resolution, the

Lightboard annotation tool, PC and Macintosh compatibility, 16.7 million colors (24-bit), and the optional snap-in Cyclops (Merisel SKU#32191) interactive pointer system.

Costs for the Ovation+ panels are as follows: model 840C, \$4,995; model 842C, \$5,695; and model 846C, \$6,695. The Cyclops pointer system and its accessories range in price from \$195 to \$1,195.

Proxima, 9440 Carroll Park Drive, San Diego, California

92121-2298. (619) 457-5500, fax (619) 457-9647. Horsteweg 24, 6191 RX Beek, The Netherlands. +31-43-650 248, fax +31-43-649 220. (800) MERISEL.

Safety strategies

Back Again/2 Professional Edition, Version 3.0, is now available from Computer Data Strategies. Version 3.0 offers a broad range of device support, integration with OS/2 Warp's Workplace Shell, a built-in back-up scheduler, and multiple-level

data compression. Back Again/2 supports SCSI tape drives, Bernoulli boxes, Syquest removable hard drives, magneto optical drives, IBM LAN Server, Novell NetWare drives, and IBM AS/400 PC Support drives. Its standalone restore utility can be used to restore an OS/2 system for a complete backup in as few as eight minutes.

For pricing, contact Computer Data Strategies, Inc., PO Box 25123, Woodbury, Minnesota 55125. (612) 730-4156, fax (612) 730-4161.

News

Simply native apps

Motivated by Warp users' vocal demands for native apps, the 4Home Productions division of Computer Associates will release five of its software packages for OS/2. This summer will see the release of OS/2 versions of Kiplinger's Simply Money, Simply Tax, Simply Vacation, Simply House, and *Parents Magazine's* Simply Kids, according to 4Home Productions General Manager George Kafkarkou.

When *OS/2 Professional* asked if further OS/2 releases were being developed, Kafkarkou laconically replied: "Watch this space."

One big BBS

What began in early 1990 as a simple collection of 300 files—uploaded largely to demonstrate the strong following and support of OS/2 programming—has matured into the world's largest collec-

tion of OS/2 programs and information. The OS/2 Shareware BBS recently hit the 10,000 file mark.

"We get a broad range of people checking us out. Everyone from the developers to the neophytes to the old-hands shows up," Pete Norloff, system operator of the BBS, told *OS/2 Professional*. "We see a surge whenever IBM releases a new version. But since the release of Warp, we've seen a large number of new OS/2 users dropping by with questions," says Norloff.

The BBS does an estimated 50,000 file transfers each month and posts a range of freeware and shareware programs that includes programming tools, utilities, and OS/2 multimedia programs, according to Norloff.

The board can also be accessed directly at (703) 385-4325 (28.8,n,8,1) or via the Internet at <http://www.os2bb.com>.

Price cut

Coinciding with its release of the OS/2 Fullpack, IBM announced a price reduction in its Internet access service for the U.S., Canada, and Australia. Effective March 1, the reduction affected both new and existing customers.

The U.S. registration fee was lowered to \$27.50, from \$35; the Canadian registration fee was reduced to \$25 (Canadian), from \$40; and the Australian registration cut in half to \$30 (Australian).

The monthly comprehensive subscription price for the U.S. remains unchanged at \$29.95 for 30 hours, with a reduction in per hour charge from \$3 to \$2. The Canadian monthly subscription charge was reduced to \$29.95, from \$39.95 with hourly rates dropping from \$4 to \$3. Similarly, the Australian monthly fee was dropped from \$60 to \$35 with the hourly rates falling from \$8 to \$5.

A Wiley deal

John Wiley & Sons, Inc. has reached an agreement in principal with Van Nostrand Reinhold (VNR) for the purchase of VNR's OS/2 book list. Expected to be finalized by early spring, acquisition of the 37-title list gives Wiley the largest inventory of OS/2-related books.

The VNR list covers subjects related to OS/2, client-server technology, and object-oriented programming and will be added to Wiley's existing list. The company told *OS/2 Professional* that it plans to aggressively market the books to maintain its position as the premier publisher of OS/2-related materials.

According to Wiley sources, six new OS/2 titles are slated for publication this year. ♦



HOW To Build a *P*rocess INDUSTRIES PROJECT

that's
TOP of the
LINE



OS/2 *Warp*

Slash scrap and rework, increase profits, limit equipment expense by using computers for multiple functions, dazzle your boss with quick disaster recovery (better yet, he need never know), improve quality in real time - Heck, take a load off by using our products to make it easier to do more.



ONSPEC[®] *Easy*

OS/2 and Warp registered by IBM Corporation.

The **ONSPEC Family** of Automation Software is a robust offering developed in native 32 bit mode that exploits the power of WARP to your advantage. Meat and Potato solutions that simply work. Day in and Day out. Year after Year (You get the picture).



Our OS/2 solutions are installed all over the world. So if you have *voluptuous* robust process requirements that can't be satisfied by skinny solutions call 916-939-0262.

*Western Thunder, Inc. DBA
ONSPEC Automation Solutions
El Dorado Hills, CA
916-939-0262 FAX 916-939-0290
1-800-939-0439*

*For the Far East...
GCG Inc.
916-631-6313
916-631-6312*

*For China...
GCG Group
Beijing: 6058325
Shanghai: 2199332*



For more information circle #232

Programming with SOM

BY CHRISTINA LAU

The System Object Model (SOM) is a first step toward building component software. In a component system, developers re-use code by calling an exposed interface that hides the underlying implementation language and structure. In OS/2, SOM becomes the basis for development of re-useable binary components available to other OS/2 objects.

History of SOM

SOM 1.0, first introduced in 1992 with OS/2 version 2.0, defined an object model independent of programming languages. SOM 1.0 introduced a language called Object Interface Definition Language (OIDL) to define classes. As you would expect in an object-oriented model, you could subclass from the SOM base classes. The new child classes inherited the attributes and methods of their parents. When subclassing was insufficient, you could add new methods or override existing methods to introduce new behavior. However, this first SOM release had some awkward limitations: It supported only single inheritance and the method body had to be written in C.

SOM 2.0 shipped in 1993 with major enhancements. It supported multiple platforms, including OS/2, AIX/6000, and Windows. Class definition followed the CORBA Interface Definition Language (IDL). SOM 2.0 supported multiple inheritance and C++ language bindings (in addition to the older C standard). As a final complement to the development tools, the revision added a number of frameworks (some are described below).

A variant of SOM, Distributed SOM (DSOM) supported transparent, remote access to distributed objects. DSOM appeared in two flavors. The Workstation Enabler allowed an application to access objects in other processes on the same machine. The Workgroup Enabler let an application access objects distributed across a multipatform network, including machines running OS/2, AIX, and Windows.

SOM 2.0 introduced three fundamental frameworks

LISTING 1

PERSON.IDLPERSON.IDL

```
#include <somobj.idl>
interface Person : SOMObject
{
    attribute string name;
    void display();

    #ifdef __SOMIDL__
    implementation
    {
        releaseorder : display, _set_name, _get_name;
        name: noset;
        somUninit: override;
    };
    #endif
};
```

LISTING 2

THE PERSON CLASS CUSTOMIZED IMPLEMENTATION FILE

```
#include "person.xih"

SOM_Scope void SOMLINK _set_name(Person *somSelf,
                                   Environment *ev,
                                   string name)
{
    PersonData *somThis = PersonGetData(somSelf);
    PersonMethodDebug("Person", "_set_name");

    if (somThis->name)
        SOMFree(somThis->name);

    somThis->name=(string)SOMMalloc(strlen(name)+1);
    strcpy(somThis->name, name);
}

SOM_Scope void SOMLINK display(Person *somSelf,
                                 Environment *ev)
{
    PersonData *somThis = PersonGetData(somSelf);
    PersonMethodDebug("Person", "display");

    somPrintf("Person name : %s\n", somThis->name);
}

SOM_Scope void SOMLINK somUninit(Person *somSelf)
{
    PersonData *somThis = PersonGetData(somSelf);
    PersonMethodDebug("Person", "somUninit");
}
```


CODE CACHE

```
Person_parent_SOMObject_somUninit(somSelf);
if (somThis->name)
    SOMFree(somThis->name);
}
```

LISTING 3

STUDENT.IDL

```
#include <person.idl>
#include <somcls.idl>

interface M_Student; // Forward reference for
                     // the metaclass.

interface Student : Person
{
    attribute string dept;
    attribute long id;

    #ifdef __SOMIDL__
    implementation
    {
        releaseorder: _get_dept, _set_dept,
                     _get_id, _set_id;
        metaclass = M_Student;
        functionprefix = s_;
        dept: noset;
    }
    #endif
}
```


to assist SOM procedure development: the Persistence Framework, Replication Framework, and Emitter Framework. The Persistence Framework supports storing and restoring of objects, allowing an application to preserve the state of an object beyond the existence of the process that creates the object. The Replication Framework enables the construction of replicated objects. Updates made to a copy can be propagated to all the other copies by the framework. The Emitter Framework helps those who want to expand language support beyond the Cs by providing other language bindings for SOM. It off-loads the burden of having to write IDL parsers.

The most current release, SOM 2.1, arrived late last year. It provides better performance for both SOM and DSOM and includes Direct-to-SOM (DTS) Compiler support for C++ DTS compilers from IBM and MetaWare.

Each release of SOM maintains full binary compatibility with previous releases. In other words, applications developed with a previous release will continue to run with a new release without any recompilation.

CONSTRUCTION
ZONE

BEGINS
(with)




IPF BUILDER™

- Quickly create INF and HLP files
- Compile and view as you develop
- Link to headings and footnotes
- Create your own custom menus
- Point and click access to tags
- Tree view of the IPF structure
- And much more...
- Certified 'Ready! for OS/2'


Eliminate the bumpy road in IPF development

* Requires IBM's IPFC compiler

For further information and quantity pricing call:



Custom Design Software
 3848 Warren Avenue
 Royston, BC, Canada
 V0R 2V0
 Phone: (604) 334-2263
 Fax: (604) 334-3125





**PERSONAL FINANCIAL MANAGEMENT
for OS/2**

- + One Step Payment of Recurring Checks
- + Comprehensive Financial Reports
- + Quick Reconciliation of Bank Statements
- + Reminder of Due Dates for Bills
- + Easy Tracking of Credit Card Purchases
- + Unlimited Allocations for Transactions
- + Fully Graphical User Interface
- + Simple Budgeting
- + Quicken Import and Export
- + Extensive On-line Help
- + All for Just \$89 + Shipping

Computer Interface Corporation
 Call (800) 992-3428
 5 Whittier Road, Natick MA 01760
 (508) 651-8111 Fax (508) 651-8112

For more information circle #258

For more information circle #283

CODE CACHE

Developing a SOM Class

The first step in developing a SOM class is to define its interface by creating an IDL source file that must have an .idl extension. It contains information required for others to use the class. The example in Listing 1 demonstrates code for the person.idl.

The Person class derives from SOMObject, the root class for all SOM classes. This new class introduces one method and one attribute. In SOM, attributes are instance variables that automatically define get and set methods.

The implementation section defines additional information about the class implementation. The release order statement must include every method introduced by this class, including the get and set methods for each attribute. This statement ensures that changes in the class definition will not require recompilation of client programs. When first created, the order of the method names is unimportant. However, when other programs make use of the class, the method names on the list must not be reordered. New methods must be added to the end of the

```
somUninit: override;
display: override;

};

#endif

};

interface M_Student : SOMClass
{
    const long SID_BASE = 1000;
    Student newStudent (in string dept);

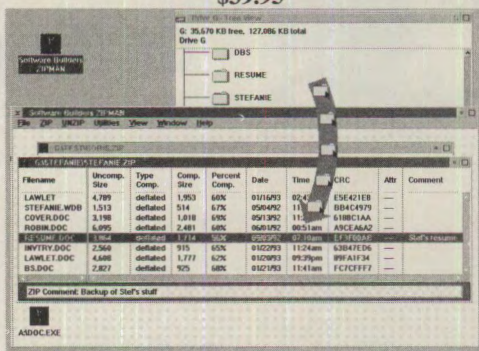
#ifdef __SOMIDL__
implementation
{
    releaseorder: newStudent;
    functionprefix = ms_;
    somInit: override;
    long count;
};
#endif
};
```

LISTING 4

THE STUDENT CLASS CUSTOMIZED IMPLEMENTATION FILE

```
#include "student.xih"
```

Software Builders ZIPMAN™ for PKZIP/PKUNZIP™ Version 2.00 for OS/2™ \$39.95



Easy to use graphical interface.
View more than one ZIP file at a time.
Drag and Drop files to be zipped from the Drives Folder.

Call toll free at 1-800-432-0025

Software Builders, Inc.
1630 Pleasant Hill Rd., Suite 180-243, Duluth, GA 30136
Atlanta (404) 717-8003, FAX (404) 717-9054 (24 hours)



Please add \$5.00 S/H in the US & Canada, \$8.50 overseas.
Georgia residents add 5% sales tax.



For more information circle #135

Turn your ideas into reality 3 times faster.



Mechanical
Design



Cabinetry/
Woodworking



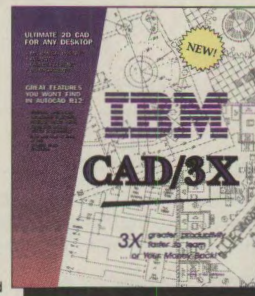
Furniture
Arrangements



Electrical
Schematics



Form/Letterhead
Design



Construction
Plans



Home/Office
Layouts



Landscape
Design



Schedules &
Flowcharts



Graphic
Illustrations

So easy to use yet
more 2D features than any CAD under \$1000

- Full featured to quickly make any 2D drawing
- Lines, Arcs, Curves, Symbols, Export to WP, Analyze, Associative Dimensioning, 2D Booleans, and more
- Parametric parts, Programless macros
- Patented - Dynamic highlighting, Smart redraw reduces learning time AND slashes drawing time!
- Online graphical hyperHelp, Online Demos
- Outstanding DXF compatibility
- DOS version also available

Try it for a
limited time. **\$9⁹⁵**
Pay only Shipping
and Handling now. If you decide to
keep it after 30 days, pay just \$99.
Credit card orders only.

System requirements: IBM compatible
PC with math coprocessor, 5 MB free on
hard disk, mouse. OS/2: 6 MB RAM min-
imum, OS/2 1.3 or higher. DOS: 1 MB RAM
minimum (4 MB recommended), DOS 3.3 or higher.

IBM CAD
800-426-2231 ext. 67

For more information circle #196

April 1995 OS/2 Professional 63

CODE CACHE

```
SOM_Scope void SOMLINK s__set_dept
(Student *somSelf, Environment *ev,
string dept)
{
    StudentData *somThis = StudentGetData(somSelf);
    StudentMethodDebug("Student", "s__set_dept");

    if (somThis->dept)
        SOMFree(somThis->dept);

    somThis->dept=(string)SOMMalloc(strlen(dept)+1);
    strcpy(somThis->dept, dept);
}

SOM_Scope void SOMLINK s_somUninit(Student *somSelf)
{
    StudentData *somThis = StudentGetData(somSelf);
    StudentMethodDebug("Student", "s_somUninit");

    Student_parent_Person_somUninit(somSelf);
    if (somThis->dept)
        SOMFree(somThis->dept);
}

SOM_Scope void SOMLINK s_display(Student *somSelf,
Environment *ev)
{
    StudentData *somThis = StudentGetData(somSelf);
```

list. If an existing method is removed from the class, the method name must not be removed from the list.

If the default get/set implementation for each attribute is not appropriate for your needs, modifiers such as noset or noget tell the SOM compiler to skip default implementation. In this case, a stub procedure will be generated for the class implementor to complete.

The next step is to run the SOM compiler against this IDL file to produce binding files and an implementation template. Binding files are header files that make it easier to implement and invoke SOM classes. The SOM compiler generates an implementation file that contains stubs for each new and overridden method in the class. You customize the implementation by adding code to the implementation template. Listing 2 shows the customized implementation file for the Person class.

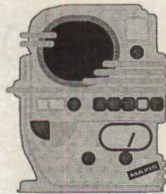
At this stage, we have completed the implementation of a very simple SOM class. If you want to create some Person objects, you can write a client program to use the new class.

SIMCITY[®]

CLASSIC The Original City Simulator

for

OS/2



Yes!

This is *the Real Thing*. A full native, 32 bit, multi-threaded implementation of the multi platform, multi award winning game almost everyone has gotten their hands on and loved to play.

In SimCity, you become the mayor of an evolving, growing city. Seven world famous cities are simulated, or design your own village or metropolis.

SimCity gives you the keys of the city. The rest is up to you. You'll need to take action against monsters, earthquakes, pollution, crime, traffic gridlock and much more. The sounds, the colors and the actions are irresistible.

Winner of over 40 major industry awards and gaining international acclaim has put SimCity in a class by itself. Accept no Substitutes!

Requirements: OS/2 2.1 or OS/2 Warp, IBM or compatible 386 or 486, 8 Mb RAM, 2 Mb HD, VGA or greater graphics, Color, OS/2 sound support.

Call 1-800 543-4999 or (415) 473-1800

Email: simcity@dux.com



MAXIS



"The Eagle Has Landed"



On Warp!

The Deluxe American Heritage Dictionary[™]

- search on 200,000 words
- full definitions
- parts of speech
- proper usage
- hyphenation
- idioms
- inflections
- abbreviations
- sample sentences
- word origins
- biographical data
- and more

Includes Roget's II Thesaurus and a lot more

Under \$60. Call 1-800-543-4999 for details.



Email: sales@dux.com

Published by DUX Software



DUX

CODE CACHE

Adding Inheritance

Let's say we want to create a more specialized derivative such as a Student class that models student information. A student has additional attributes including a student ID and areas of studies. We add these attributes by deriving the Student class from the Person class.

Using Metaclass

In our example, the student ID follows the typical model. The school assigns each student a new student ID upon admission. This ID must be unique to ensure proper administration.

We can implement this policy with SOM by using a metaclass. This performs class-related operations, such as creating instances of a class and keeping count of how many instances have been created. Listing 3 shows the relevant student.idl.

The Student class inherits from Person class and adds two new attributes: Dept and ID. It overrides the display method from the Person class. We define a meta-

```
StudentMethodDebug("Student", "s_display");

Student_parent_Person_display(somSelf, ev);

somPrintf("Student Dept: %s\n", somThis->dept);
somPrintf("Student id : %d\n\n", somThis->id);
}

SOM_Scope Student* SOMLINK ms_newStudent
(M_Student *somSelf,
 Environment *ev, string dept)
{
    M_StudentData *somThis =
        M_StudentGetData(somSelf);
    M_StudentMethodDebug("M_Student", "ms_newStudent");

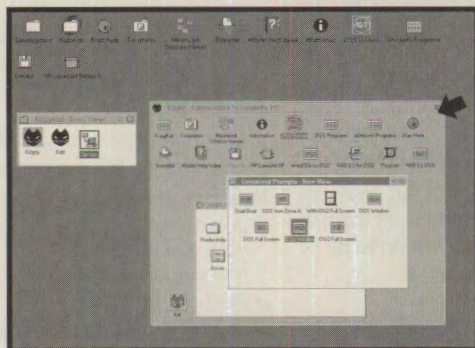
    Student * student = somSelf->somNew();
    student->_set_dept(ev, dept);
    student->_set_id(ev, SID_BASE + somThis->count);
    somThis->count++;
    return student;
}

SOM_Scope void SOMLINK ms_somInit(M_Student *somSelf)
{
    M_StudentData *somThis =
        M_StudentGetData(somSelf);
    M_StudentMethodDebug("M_Student", "ms_somInit");
}
```

KopyKat Remote Control Software

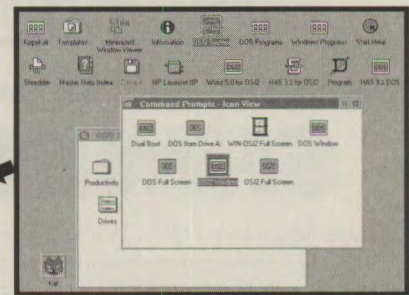
Anything that you can do on a PC with OS/2, you can now do *remotely* through a LAN, modems, or serial cable. That means you can run:

- The remote computer's entire OS/2 2.1 desktop, including Workplace Shell itself
- OS/2 Presentation Manager graphical interface programs, both 16-bit and 32-bit
- OS/2 command sessions or text mode programs, windowed or full-screen
- Microsoft Windows or Windows programs, "seamless" or full-screen
- DOS command sessions or programs, windowed or full-screen



Get the full OS/2 desktop of the remote PC on your screen, under control of your mouse and keyboard.

For FREE trial disks, call (800) 826-2760, and ask for Dolores in Sales.



Remotely controlled OS/2 PCs are password-protected for attended or unattended access.

KopyKat is an exciting new remote control solution specifically for OS/2, from the makers of HyperACCESS/5, the leading modem software for OS/2 since 1989. KopyKat gives you fast, reliable graphical remote control between OS/2 2.1, 2.0, or 1.3 workstations on LANs with NetBIOS, such as Novell Network and LAN Server. And Hilgraeve's hot compression technology and built-in support for hundreds of modems make **KopyKat** the fastest, easiest solution for dial-up remote control.

- Uses**
- Remote support thru LAN or modems
 - Administration of remote LANs
 - Remote access to LAN resources
 - Monitor employee workstations
 - Telecommuting or work-at-home

Hilgraeve

111 Conant Avenue, Suite A, Monroe, MI 48161
(313) 243-0576 Fax (313) 243-0645

New in Version 1.1
Fastest PC-to-PC file transfers
Now supports TCP/IP networks
Even faster remote control!

© Hilgraeve 1994; KopyKat trademark and HyperACCESS registered trademark of Hilgraeve; Windows registered trademark of Microsoft; OS/2 registered trademark of IBM.

For more information circle #203

CODE CACHE

```
M_Student_parent_SOMClass_somInit(somSelf);
somThis->count = 0;
}
```

LISTING 5

USING SOM OBJECTS IN A PROGRAM

```
#include "person.xh"
#include "student.xh"

Environment *ev = somGetGlobalEnvironment ();

printPersonData(Person *person)
{
    person->display(ev);
}

int main(int argc, char *argv[])
{
    Person *rod;
    Student *mary, *john;

    rod = new Person();
    rod->_set_name(ev, "Rod Johnson");

    StudentNewClass (Student_MajorVersion,
```

class, M_Student for the Student class, using the meta-class modifier.

The M_Student class derives from SOMClass, the root of all SOM metaclasses. It defines a class method, newStudent, for registering a student into the system. The M_Student keeps a count of the student objects that the Student class creates. Each student is assigned a new ID by adding the count to a base ID.

Note that the count variable is defined in the implementation section of the .idl. This means that this instance variable can only be accessed within this class. If the instance variable must be accessible by a client program or a subclass, declare it as an attribute in the .idl. Listing 4 shows the customized implementation file for the Student class.

Client Usage

An example showing how a client can use these classes appears in Listing 5. This program creates and initializes a Person object and two Student objects. The StudentNewClass creates the class object for the class Student and stores it in the variable _Student. The client invokes



Telephony Software Solutions With Performance That

SHINES

► Our powerful advanced OS/2 IVR software has always provided unmatched performance. Script-driven telephone calls, a voice/fax/database engine, complete call progress reporting, and network/host capability are among the standard features that have made FAXForward™ a leader in the field. Available scripts for Automated Attendant, Voice Mail, Fax Mail, Fax Server, and other functions maximize Fax Forward's utility.

► Now, FAXForward™ adds Voice Recognition, Text-to-Speech conversion, Data Communications (Spring 1995), and an available Developer's Kit, to take your telecommunications to a whole new level.

► FAXForward™ can run from one line to unlimited lines. FAXForward™ is IBM OS/2 Certified, IBM LAN Certified and BORLAND Certified.

Narragansett Bay Software • 690 Warren Ave. • East Providence, RI 02914
Sales: 401-435-5090 • Demo: 800-841-0267

For more information circle #235



Take control of your OS/2 scheduling needs with
Advanced Task Scheduler for OS/2

ATS

Version 3.0

Are you looking for a way to manage your production job streams? • Do you have programs that need to run after the completion of one or more other programs? • Do you want to process files that have just been received from another system or modified locally? • Do you need to schedule around holidays and periods of heavy CPU load?

With ATS you can run your programs when **YOU** want them to run without you having to be there.

Major Features of ATS for OS/2:

- ✓ Manage production job streams
- ✓ Programs can be scheduled to run anytime
- ✓ Programs can be dependent upon files, other programs, holiday schedules, and external signals
- ✓ Integrated operators console
- ✓ Logging—to file and console

New Features:

- ✓ Job queues—for managing your resources while managing your tasks
- ✓ Periodic scheduling
- ✓ Complete API and command line interface

Upgrades available from
Version 2 and other Task
Schedulers. Call or E-mail
for details.

MHR

Software and Consulting

2227 U.S. Highway #1 • Suite 146 • North Brunswick, NJ 08902
Voice: (908) 821-0359 • Fax: (908) 821-0350 • CompuServe 70312,627

Only
\$349



For more information circle #92

CODE CACHE

the class method `newStudent` twice to create two instances of `Student` class, and invokes the `set_name` method on each one to set the name of the student.

Is SOM for You?

With some basic background behind you, the real question is: Do you want to use SOM in your environment? In answering that question, you should first ask a few more questions. Do you want to maintain binary compatibility so that client programs need not be recompiled every time you change the class definitions? Do you want to implement your objects in different languages and have them work together? Do you want to distribute your objects across platforms? Do you want a more dynamic method resolution mechanism than what C++ provides? If the answer is yes to any of these questions, then you should seriously consider SOM. ♦

Christina Lau is the author of the book, Object-Oriented Programming Using SOM and DSOM. She works in the Application Development area in the IBM Toronto Laboratory. She can be reached at clau@torolab6.vnet.ibm.com.

```
Student_MinorVersion);
mary = _Student->newStudent (ev, "Science");
mary->_set_name(ev, "Mary Law");

john = _Student->newStudent (ev, "Arts");
john->_set_name(ev, "John Sears");

printPersonData(rod);
printPersonData(mary);
printPersonData(john);

return(0);
}
```

The output of this program is given below.

Person name : Rod Johnson

Person name : Mary Law
Student Dept: Science
Student id : 1000

Person name : John Sears
Student Dept: Arts
Student id : 1001

\$199.
Suggested
Retail
Price*

MESA 2™

Spreadsheet Software for OS/2®



- Native OS/2 Spreadsheet
- Small • Fast • Powerful
- REXX scripting
- Objects to the core

**TO ORDER: CALL
1.800.315.MESA**

ATHENA DESIGN
SPREADSHEET TECHNOLOGY FOR A NEW FRONTIER

332 Congress Street, Boston, MA 02210-1217 USA
phone. 1.617.426.6372 • fax. 1.617.426.7665 • email. info@athena.com

*Shipping & handling charges extra.

OS/2 is a registered trademark of International Business Machines Corp., Inc.

For more information circle #248

Industrial strength native OS/2 PM Communications.

When you outgrow the "lite" weight software and need heavy duty communications solutions, the software of choice is RhinoCom.

RhinoCom is reliable, versatile, friendly, and uses native PM Code to maximize the benefits of OS/2.

Please call 1-800-234-4546.

RHINOCom™

Reliable OS/2 Communications

MSRP \$199. VISA & MC.
8835 Columbia 100 Pkwy,
Columbia, MD 21045
Phone: (410) 730-2575
FAX: (410) 730-5960

Rhintek
Computer Engineering
Developing System Software since 1977.

For more information circle #271

April 1995 OS2 Professional 67

a mug,

E.S.P.
OS/2 Express
Savings Program

a sub,

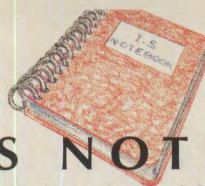
Your ticket to unequalled savings on OS/2 software, books, and accessories. Join E.S.P. and enjoy:

- Free shipping and handling on all OS/2 Express orders*
- Free 10-issue subscription or renewal to *OS/2 Professional* (\$25 value)
- Free OS/2 Express-O Mug
- Quarterly newsletter of special low pricing available only to E.S.P. members
- Guaranteed lowest prices

a whole lot more.

To join E.S.P. call
1-800-OS/2 KWIK
Only \$50.00/year

*Free shipping and handling available only on US orders delivered via USPS Express Mail.
All other member orders will receive a 30% discount on shipping and handling.



THE IS NOTEBOOK

Tips and Techniques for the OS/2 Professional

Recovery Options

BY GORDON SCOTT

When you use OS/2 effectively it changes your horizons. Applications that seemed beyond your reach because of system constraints suddenly become feasible, and you gain a new understanding of what is possible with your system. As a system administrator or OS/2 support person, this understanding also means you will have to support and maintain a wider variety of devices and applications than ever before.

Your company's users will realize that they can now operate a scanner, fax/modem, and tape backup drive all at once because OS/2's multitasking allows them to keep working while time-consuming tasks are taking place. In a perfect world, this means users are empowered by the operating system without any additional effort on your part. But in reality, you know that you'll have to help users recover from their mistakes when adding new devices and applications to their systems. Fortunately OS/2 Warp comes with some particularly helpful utilities for recovering from such problems. The following tips will introduce you to some of these options.

Set Warp to save system files as backups each time the system starts.

- Open the Desktop Settings notebook.
- Select the **Archives** tab.
- Select the checkbox labeled **Create archive at each system restart**.

After selecting this checkbox, the system will save four files and the Desktop directory tree in a sub-directory of \OS2\ARCHIVE. (This location can be customized from the Archive page of the Desktop Settings notebook.) The archive feature will save the most recent

three versions of these files (in addition to the versions created during the original installation procedure). After three versions have been saved, the oldest one will be replaced on the fourth and consecutive system starts. This option can increase boot time up to twice what it otherwise would be—many users who report slow boot performance do not realize that desktop archiving runs before the Desktop opens.

The four files saved by archiving are: OS2.INI, OS2SYS.INI, CONFIG.-SYS and AUTOEXEC.BAT. These files are saved with the names "0," "1," "2," and "3" respectively. These files weren't meant to be recovered by being directly copied, though you could simply copy them to their intended locations and rename them. A better way to get at these files is to use the recovery feature that restores them automatically.

Automatically restore previously saved system files at startup.

- As OS/2 is booting, wait until a small white box and "OS/2" appears in the upper left corner of the screen.
- While the small white box is displayed press Alt+F1.
- Select one of the options for restoring the system files you want. (These options will be 1, 2, and 3 for the three most recently saved set of system files, and X for restoring the original system files at install time.)

Using this process is more reliable than trying to use "CALL COPY..." commands in your CONFIG.SYS file because not only are system files saved and restored, the Desktop directory tree is saved as well. This directory tree con-

tains all the information about your Desktop icons and folders. To the untrained eye it appears as merely an empty directory structure, but anyone who has erased these directories by accident or ignorance will tell you that they contain much more than they show.

The extended attributes of this directory structure contain information about the attributes and appearance of things on the Desktop. Without this directory structure, you couldn't display the Workplace Shell. The Archive function allows all this information to be captured and restored easily.

Help users determine their device driver problems using another of Warp's recovery features.

- As OS/2 is starting, wait until you see a small white box and "OS/2" appears in the upper left corner of the screen.
- While the small white box is displayed press Alt+F2.

These steps will cause OS/2 to display the names of the device drivers as they are being installed. If you or someone you support is trying to detect conflicts between various devices, using this procedure will tell you which order the devices are being loaded in, and could provide clues for solving the problems.

Reset video drivers to basic VGA.

- As OS/2 is starting, wait until you see a small white box and "OS/2" appears in the upper left corner of the screen.
- While the small white box is displayed press Alt+F1.

THE I.S. NOTEBOOK

• When OS/2 displays the recovery options, type V.

If you are changing a monitor, a graphics card, or updating a video driver, you might feel it necessary to experiment with a few of the various choices available. But if the results unexpectedly leave you hanging, this recovery procedure will return you to safety.

For example, some video cards and their drivers will support certain modes of one monitor, while not supporting other modes. Your monitor may only be capable of displaying 640x480 and 800x600 modes and not 1024x768 mode. The driver for your graphics card, however, may support monitors that are capable of displaying all three. Unless you know beforehand, you might try 1024x768 as the "best" resolution. However, when you reboot you might discover an indecipherable screen.

With an unusable screen before you, you might think a re-install is immi-

nent. But thanks to Warp's improvements, you have a better option: Resetting the video driver to VGA will make a clean start without having to re-install.

Create utility diskettes for booting OS/2 from diskette.

- Open the System Setup folder from the OS/2 system folder or the Desktop pop-up menu.
- Double-click on the icon labeled "Create Utility Diskettes."
- Have three 1.44 MB diskettes or one 2.88 MB diskette on hand.
- Follow the dialog boxes that prompt you through the procedure.

There may come a time when you need to boot OS/2 from diskette. Whether for your machine or someone else's, don't wait until you must make the diskettes. Have these disks on hand

ahead of time. The procedure is very simple with the addition of this new feature.

This program will create diskettes that boot OS/2 without the Workplace Shell. It will install the minimum set of device drivers necessary for the machine that created the diskettes. It will also include the TEDIT.EXE program on disk 2 so that you have an editing program available for modifying files on your hard drive or elsewhere.

Unlike the Install diskettes that ship with Warp, the second boot diskette leaves plenty of free space. This makes it fairly simple to add drivers unique to your system: backup drivers, RAID software, optical storage drivers, or other "critical" recovery components. ♦

Gordon Scott has written for OS/2 Professional since its inception and currently works as an electronic publisher.



When Operating At These Speeds, Please Use Both Hands.

Clearlook - The Cellular Word Processor™ is developed exclusively to unleash the power of OS/2. This high-performance, multi-threaded application has achieved international acclaim for its superb design and substantial document processing capabilities. Users quickly and easily construct complex documents from the start. With unsurpassed productivity and flexibility, Clearlook is the fastest word processor in the OS/2 marketplace! So please use both hands, thank you.

The Clearlook Upgrade Combo
Includes v1.1, Free Lifetime Tech-Support, **\$249**
Plus Free Upgrade To v2.0.

Clearlook v1.1
and free lifetime tech-support **\$199**

Order Today !
1-800-818-LOOK

Fax: 703-764-3746

Mastercard, Visa, and American Express welcomed.

Free Demo On BBS - 703-204-3440





Now for only \$89 from OS/2 Express

Put Bloodhound on the trail. If the clue is *airplane*, Bloodhound can find *airport*, *jet*, even *727*. Give it *Gerstner*, and Bloodhound can track down *IBM's CEO*, even *Aker's replacement*.

What is Bloodhound? It's an amazing software breakthrough that can sniff out any phrase or associated phrases anywhere on your disk or network, because it's the fastest, smartest, most unerring text finder ever invented.

No other commercially available program can seek out every last word variation with its avid speed or dogged thoroughness, simply because no other program uses its proprietary, artificial-intelligence-based, state-of-the-art technology. And, you lucky dog, it's available only for OS/2.

If you're in communications, health care, manufacturing, sales, research, law, finance, or government (not to mention—ha-ha—law enforcement), you really can't afford to be without Bloodhound.

End the frustrating lost and found games you've been playing with your computer. Find out all about Bloodhound, and order it, just by calling *OS/2 Express* at 800-OS/2 KWIK (800-672-5945). Then sit back and enjoy the hunt.

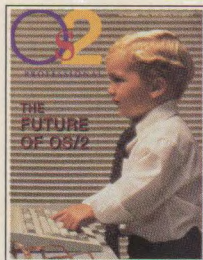
Track it down with Bloodhound.

Call 1-800-OS2-KWIK



Round Out Your Collection

11/92 • The Future of OS/2 Premiere Issue!



Marketing/technology forecasts; Will Networking Save OS/2?; Computer Warfare; Autographed.

\$50.00

1/93 • DOS Users Get Their Just Desserts With OS/2

Plus Dvorak's OS/2 Manifesto; OS/2 and SQL.

\$10.00

3-4/93 • Is There Light At The End Of The Carpal Tunnel?

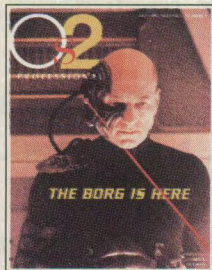
Plus Canada's Royal Bank and OS/2; IBM-Apple Alliance.

\$10.00

5/93 • The Borg Is Here

The cover that spawned a poster. OK, they thought of the TV show themselves. Only 20 copies available.

\$100.00



7/93 • Windows Unlatched

WIN-OS/2; Accounting For Success; Interview with IBM global marketer William Rich.

\$40.00

8/93 • OS/2 vs. NT

Plus IBM's corporate values; High Tech at Pearson High.

\$10.00

9/93 • Grassroots Power

How IBM nurtures user groups; An OS/2 Biker; What to do when the hard disk is full.

\$10.00

10/93 • Remote Computing

Plus OS/2's System Object Model; The power of Mach kernels; Information age law.

\$10.00

11/93 • Pentium vs. PowerPC

Plus Automated GUI Testing; Two visual REXX products; The OS/2 source code split.

\$10.00

12/93 • Systems Integrators to the Rescue

Integrating OS/2; OS/2 2.1 for Windows debuts; Chicago beta flops; OS/2 Professional Awards

\$10.00

1/94 • The Future of OS/2

War for market share; the many OS/2 "flavors"—What's next?

\$20.00

2/94 • Disaster Recovery

Contingency planning for data disaster; The Storage Challenge; Symmetric Multiprocessing.

\$20.00

3/94 • The Speech Recognition Revolution

Plus OS/2's multimedia application shortage; Interview with Borland President Philippe Kahn; New connectivity tools.

\$7.00

4/94 • Gerstner's First Year

Gerstner's report card; Interview with Taligent President Joe Guglielmi; Government encryption snoops.

\$7.00

5/94 • On Track with CSX

How OS/2 helps manage a titan of the rails. Plus, The Changing Face of Enterprise Architectures; Is a CPU upgrade the answer?

\$7.00

6/94 • Building Your Own

OS/2 Pro Builds the OS/2 Dream Machine from parts; Chip Wars Revisited; How to run OS/2 on 4mb of RAM.

\$7.00

7/94 • DOA: How IBM Killed a Perfectly Wonderful OS/2 App

Or, The Birth of Bloodhound. Plus Some Lotus Notes from Hilmi Ozguc.

\$40.00



8/94 • Tuning In

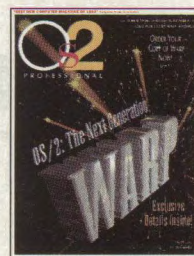
How to get the most from your disk caches; OS/2 CD-ROM debuts; A "SMART" code-migration tool.

\$7.00

9/94 • E-Mail and OS/2: Signs Of Life

Plus the OS/2 Warp beta succeeds—will IBM's marketing?; Sound on a budget.

\$7.00



10/94 • WARP

Installing it, using it, marketing it—all you need to know about the latest version of OS/2.

\$7.00

11/94 • The Warp Speed Road Warrior

What Warp offers the pro on the go; IBM's Warp "launch" makes a splash; Inter-process communication.

\$7.00

12/94 • Warp: Good as Gold?

Warp users report their concerns; Readers allege OS/2 Pro Trekkism; Taking advantage of Warp's customization options.

\$7.00

1/95 • OS/2 Strikes Back

Saving the day during the San Francisco newspaper walkout; Kogan on Windows 95 compatibility; Pournelle hears the clock tick while developers choose their OS.

\$7.00

2/95 • OS/2 Goes to College

A University's low-maintenance OS/2 network integrates DOS and Windows applications; IBM tests OS/2 for the PowerPC; Kogan asserts "We Don't Need No Stinking Microkernel."

\$7.00

3/95 • LAN's Best Friend

LAN Server 4.0's new, appealing, productivity-raising interface; Cross-Application font-fiddling; Trouble-shooting via the Information Highway.

\$7.00



TO ORDER, CALL 1-800-OS2-KWIK (1-800-672-5945)

INTERNATIONAL CALL 1-612-823-6255

*Add \$2.00 shipping and handling per book.





BOOKSTAX

Beauty and The Beast

Kevin McBride reviews *Lotus Notes Release 3 in the OS/2 Environment* by Tony Walsh (Van Nostrand Reinhold, 346 pages, \$36.95) and *Lotus Notes Developer's Guide* by Eric Rayl (SAMS Publishing, 400 pages, \$39.99)

These books are Beauty and the Beast. Beauty is Eric Rayl's *Lotus Notes Developer's Guide*, pleasing to the eye and all goodness inside. The Beast is Tony Walsh's *Lotus Notes Release 3 in the OS/2 Environment*, a rough exterior but worth knowing if you take the time. The two complement each other nicely.

I call Walsh's book the Beast because it has so many rough edges. The screens were captured at low resolution so some of the window content is cut off and many are so distorted that the text in the windows is illegible. Concepts are often explained in awkward text with no graphics back-up. The index and table of contents are very thin and there are numerous spelling and grammatical errors. The book gives no explanation of the accompanying diskette. It's just kind of ugly.

But while the voice of the Beast might also be ugly to some, the content is uniquely valuable. Walsh is a Lotus insider speaking to network administrators about the details of Notes application deployment and maintenance. Network topics include details of all the protocols supported by Notes (emphasis on TCP/IP), their strengths and weaknesses, and tips on configuration and performance. The details get down to recommended settings for CONFIG.SYS, NET.CFG, and PROTOCOL.INI, which is pretty dull reading, but helps to avoid the little mistakes that require days of detective work to find and fix.

Walsh also overviews relevant aspects of the Notes internals.

The architecture topics include database structure, storage, mechanisms for database access, indexing, replication, and the division of client/server responsibilities. Again, there is important detail. The application of some detail, like the structure of note identifiers, was not immediately apparent. But in other areas, like database access, Walsh adds comments on why the Notes architecture limits or enables certain applications. This is essential reading for both potential and experienced Notes developers.

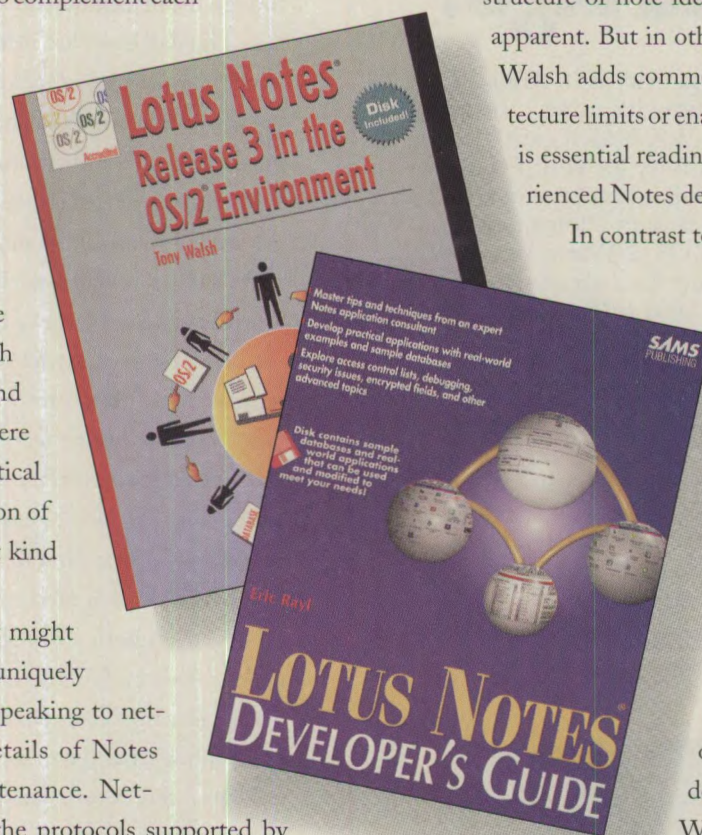
In contrast to the appearance of the Beast,

Rayl's book is Beauty

indeed. The layout and graphics are consistent and readable.

The writing is very clear with graphics support for many of the concepts presented. The index and table of contents are big enough to help you find things, and there's even a page explaining the contents of the diskette. But Rayl's book does not duplicate the topics of Walsh's book; it differs in perspective, audience, and content.

Rayl's perspective is that of a Notes application developer. He has developed applications with Notes since version 1.0 and clearly understands how to apply Notes to business problems. His experience surfaces again and again in highlighted tips on topics from rapid development processes to how to name forms for easier access. Rayl's understanding of Notes applications



The Best Time to Get Back Again/2



Was a Second Ago.

You didn't mean to get rid of it. After all, it was great work. But now it's gone... forever. If only you had installed Back Again/2¹. As the ultimate backup utility for your PC, Back Again/2 V3.0 takes full advantage of OS/2² Warp. We've packed it with choice new features, including IBM OS/2 Workplace Shell "drag and drop" support, dynamic compression adjustment, and full network support. And we've kept other goodies such as built-in scheduling, a complete stand-alone restore facility, and full 32-bit operation. With our great-looking graphical user interface, you'll create backups with the greatest of ease. No question, Back Again/2 is the most complete backup and disaster recovery software available.



Call your nearest reseller or CDS at 612-730-4156

System requirements: IBM OS/2 2.1 or greater, and support for most SCSI tape drives
¹Back Again/2 - Copyright CDS, Inc.
²OS/2 is a trademark of IBM



It's Never too Late - With Back Again/2.



BOOKSTAX

shines in the samples used throughout the book and provided on the accompanying diskette.

The first sample is a very basic event tracker that Rayl guides the reader through developing. This is a good introduction and a great way to learn, but I wish the procedures were presented in numbered lists separated from the comments—they're sometimes hard to follow in paragraphs. The other samples include inquiry tracking, bug tracking, and travel request authorization. These are complete Notes databases (which include both the data and the application code), with each given its own chapter describing the application's purpose, architecture, and details such as how to set Notes up on a server.

The accompanying diskette includes an installation program for the samples, which will take 3.5 MB on your hard disk. Even though the installation drops into Windows, it's quick and painless. The databases are readable on any of the Notes platforms, which may be part of why the author ignores platform-specific topics in the book. Walsh, on the other hand, discusses many platform details and emphasizes OS/2 as the best Notes server. I was impressed with the amount of data already in the databases, making them all the more real in look and performance.

Rayl's history suggests a frustration with getting Notes accepted in corporate IS shops, a frustration that reminds me of my not too distant past in expert systems tools. Like Notes, expert systems showed great prototype success stories and cost/benefit ratios, but they never met the promise of mainstream acceptance. Rayl muses in the preface about trying to sell Notes to IS executives who "just don't get it." Is Notes destined to be relegated to niche groupware status?

Rayl and Walsh each stress that it will not. Both emphasize that Notes is both a development environment and a unifying desktop user environment. They argue that the kind of information sharing Notes enables is more than extended e-mail—it is becoming essential to most corporate IS applications.

I have a few experiences that suggest Rayl and Walsh are correct. In a recent user interface engineering workshop I attended, there was consensus that interfaces integrating multiple users were the next advance and challenge for usability. Notes is already there. One of the products I work on at IBM is an information catalog tool called DataGuide, which enables enterprise-wide organizing and sharing of corporate information assets. Notes is one of the user interface platforms available. Finally,

THE



Shareware

CD-ROM

Demoware

YOU

Tips

CAN'T

Freeware



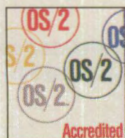
LIVE

Stupid Tricks

WITH-

Resources

OUT!



Only \$20

plus \$4 shipping and handling
(Minnesota orders add 6.5% sales tax)

More than 1,200 OS/2 shareware,



freeware, and demoware programs

and tools, as well as scores of important OS/2

resources, are now assembled on the OS/2



Professional CD-ROM. An object-

oriented WPS Application puts

program installation and information access just one

click away. Arranged with colorful graphics, the

OS/2 Professional CD-ROM is the must library for

developers, Team OS/2ers, and anyone else interested

in the diversity of OS/2 software.

AVAILABLE THROUGH
OS/2 EXPRESS

1-800-OS2-KWIK
(1-800-672-5945)

8 AM to 8 PM CST

Overseas: (612) 823-6255

Or fax your order to:
(612) 823-6267

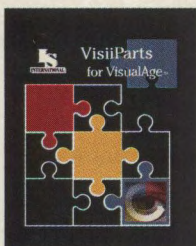


April 1995 OS/2 Professional 75



**We Will Help You
Complete The
Puzzle**

High-quality GUI
parts that enhance
and extend IBM's
VisualAge_®



- ↔ Synchronized List
- ↔ Hierarchical List
- ↔ Spin List
- ↔ Word-Wrap List
- ↔ Plus others!!!

- Interface Design
- Task analysis
- Prototyping
- Usability testing
- Style guides



- ↳ OS/2
- ↳ C and C++
- ↳ VisualAge_®
- ↳ Smalltalk
- ↳ ENFIN
- ↳ GUI Design

- ↳ OO Specialists
- ↳ Prototyping
- ↳ Design
- ↳ Tools
- ↳ Mentoring



1-800-276-1075

Internet: info@isii.com



IS International, Inc.
6501 Park of Commerce Blvd.
Boca Raton, FL 33487

Tel. (407) 994-4373
Fax (407) 994 8374

OS/2 and VisualAge are Trademarks of IBM Corporation. ENFIN is a Trademark of EASEL Corporation.

BOOKSTAX

many of the applications previously supported by IS on our mainframes are being moved to LAN at my development lab. Notes is used for a number of these applications.

So if you are thinking of Notes as a part of your enterprise application needs, get these books. Beauty (Eric Rayl's *Lotus Notes Developer's Guide*) and the Beast (Tony Walsh's *Lotus Notes Release 3 in the OS/2 Environment*) are complementary additions to the libraries of Notes administrators and developers young and old. But don't read them to your kids as a bedtime story. ♦

Kevin McBride is a programmer, writer, and usability engineer in Human Factors at the IBM Santa Teresa Laboratory in California. He can be reached on the Internet at aloysius@vnet.ibm.com.



MOVING?

**PLEASE GIVE US 6-8 WEEKS ADVANCE NOTICE.
ATTACH YOUR OLD LABEL AND
WRITE IN YOUR NEW ADDRESS BELOW.**

NEW ADDRESS:

NAME

ADDRESS

CITY STATE ZIP

MAIL TO

**SUBSCRIPTION DEPT., OS2 PROFESSIONAL MAGAZINE,
4604 CHICAGO AVE. SO., MINNEAPOLIS, MN 55407-
3513. OR FAX TO 612-823-0151.**

OS/2 C++ Class Library

Power GUI Programming with C Set++

by Kevin Leong, William Law, Robert Love, Hiroshi Tsuji, and Bruce Olson
Van Nostrand Reinhold, 879 pages, \$36.95

REVIEWED BY JAMES HANSEN

By most standards, the C programming language is one that scorns the user. Originally developed to provide a unique relationship between programmers and the bowels of computing machinery, it is but a few steps removed from dreaded assembly language. Like assembly, it gives nearly complete programming freedom. You can multiply a pointer to a double-precision floating point number by an ASCII character. Or erase a large block of your programming memory space. Trusting that you know what you're doing (and what to do with the result), most compilers would murmur only a short warning if anything at all.

While C programmers sometimes feel like they're playing Russian Roulette, C++ offers a more troubling but even richer programming environment. C++ supports all of C's exotica while allowing every nuance of the language to be redefined, changed, and appended.

Class libraries are one form of C++ programming extensions available to the C++ community. Not to be confused with C's old function libraries, class libraries are actually extensions to the C++ programming language.

It is this extendibility that makes much of our modern software and those nifty graphical screens both practical and possible. While graphical interfaces generally slow program execution and contribute little or no functionality, they add personality to

otherwise mundane software. Program personality and perceived "ease of use" are often as important as the program itself in today's competitive software market.

And that brings us to the subject of *OS/2 C++ Class Library:*

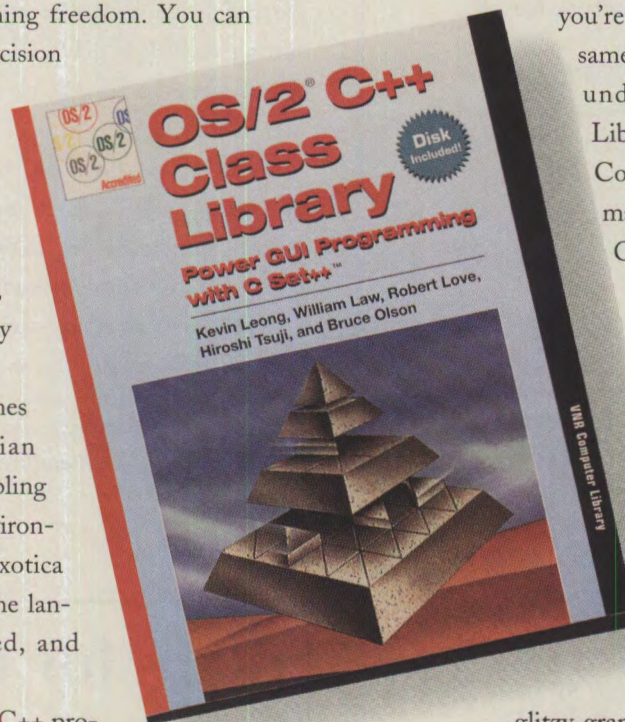
Power GUI Programming with C Set++. If you're programming and want to have the same look and feel as OS/2, you need a solid understanding of the User Interface Library, a part of IBM's C Set++ OS/2 Compiler. (Caution: this library may or may not be supplied with other so-called OS/2 compilers!)

Written by members of the original User Interface Library design teams (there were several), this book is devoted entirely to the presentation of in-depth usage of this Class Library. Developed piecemeal over three years, the User Interface Library was shipped with the first release of C Set++ in spring 1992.

The book clearly shows its Red Book heritage. You'll find no

glitzy graphics or personality photographs. The authors use a well-defined step-by-step technical approach to present the material. The text is heavily laden with programming examples and screen shots. But it is not, and does not claim to be, a tutorial. Chapters such as "Getting Started" and "Object-Oriented User Interface Fundamentals" are provided, but readers new to programming fundamentals, particularly C++, will find the going a bit rough.

Power GUI Programming is a clearly written textbook intend-





New
Version
2.0A

OS2TREE™

See your entire system
graphically at a glance!

"What XTREE GOLD is to DOS
and more!— and what Norton
Commander missed."

- Display your tree structure for all disks concurrently!
(NET disks—PRO Version only)
- View/Edit Update ZIP FILES!
- View ZIP/Directory Structures
- Pop-up list of files for any directory
- Compare and synchronize directories
- Edit/browse file(s) using any EDITOR or PROGRAM!
- Extensive FILE Search and Tree directory search capabilities make locating files and/or data easy.[GREP]
- Completely programmable: every function/key can be customized!
- Manipulate your files, directories, entire disks and/or entire system!
- Upload/download files between main-frame and PC (PRO Version only)
- Secure delete (sensitive files wiped clean)

Lite Version: \$29.99

Professional Version: \$99.99

Network Licenses Available

PM version coming

LEVINE COMPUTER CONSULTING SERVICES

7640 Provincial Dr., Suite 213, McLean, VA 22102

(800) 383-9495

Inquiries/Helpline (703) 790-1660

FAX (703) 790-0670

BBS (703) 790-1617



ed for skilled programmers working on OS/2 applications, students, or those advanced in the art of programming. Most programming examples are non-trivial and many can be used exactly as written.

More important, nearly every program example demonstrates a point or shows a process. Considerable thought and effort went into the examples, and as such, the book rates high marks for its consistently high standards.

It would be difficult to identify the most useful section of the book. But consider Chapter 21, Dynamic Data Exchange, a traditionally troublesome subject. All User Interface classes supporting DDE are discussed, along with additional functionality provided by the Presentation Manager, DDE transaction, data formats, framework design, and about 40 more pages of clear, concise text, tables, and step-by-step procedural information.

The text is nicely crosslinked with references to other related parts of the book. The book ends with chapters on performance tuning techniques, User Interface Library rebuilding, and Appendices that give quick at-a-glance library and event handler references.


Don't buy this book with the thought of learning how to program C++ or OS/2 GUI applications. If this is your goal, the tutorials bundled with C Set++ are your best bet. But if you need to improve your understanding and use of the User Interface Class Library as well as your programming productivity, this is definitely a book for you. ♦

James M. Hansen, president of New Boston MFG Technologies in New Boston, New Hampshire, is a writer on technology and computing topics.

Look for this symbol.



If you see this icon on any ad in this magazine, it means that product may be ordered through OS/2 Express.

So, look for the  and then call
1-800-OS2-KWIK

INPUT

continued from page 9

make sure you know what you are talking about!

Avi Schwartz

Evanston, Illinois

As I have often said, OS/2 is pretty good stuff for those who like to fool with computers. I am beginning to feel it is a little short of criminal for IBM to sell OS/2 Warp as a consumer home product. They just aren't prepared to support people with odd hardware configs, and they expect the user to know a lot. Most of them don't. Heck, I don't.—Jerry Pournelle

Bikini bashing

Here's a voice of support for OS/2 Professional's recent decision to edit out the bikini-clad woman in the OnSpec software ad [February].

I am no prude, but frankly when I go looking for software to run a manufacturing plant there are better ways for a company to get my attention. As a professional male, I am offended that OnSpec thinks me so simple-minded that they can get my business just by flashing skin in their ads!

I applaud OnSpec for supporting OS/2. My past exposure to their product has left me with mostly favorable impressions. But if this ad had been my first look at the software, I would have to wonder whether or not a bikini model was the only thing they had to offer.

Show me a factory-floor product that is "LAN Ready" and you've got my attention. If they really must sell image instead of substance, screen shots will do just as well.

Scott Courtney, Sr.

via the Internet

We received an equal amount of support and indignation over our decision. The indignant accused me of being "politically correct." Anyone who knows me knows I have no tolerance for "political correctness." But I do have a sense of right and wrong. I believe women should not be turned into objects for advertising. And I don't want to make revenue off an effort to do so.

—Edwin Black ♦



Fax Poll #5

Welcome to the OS/2 Professional Fax Poll.

Fax your completed survey back to us at (301) 770-1720 and we'll deliver your views directly to top IBM officials so they can hear your voice. Then, we'll publish the results in a forthcoming issue. Thanks for participating.

1. Have you purchased a copy of Warp without WIN-OS/2 (red spine)?

Yes ____ No ____ (please go to last question)

2. Why did you buy warp?

To try OS/2 for the first time Yes ____ No ____

To update 2.1 Yes ____ No ____

To add additional Windows workstations Yes ____ No ____

Other: _____

2. How did you buy your copy of Warp?

- a. ____ Retail outlet
- b. ____ OS/2 Express
- c. ____ IBM Direct
- d. ____ Catalog
- e. ____ Other
- f. ____ Can't remember

3. When did you receive your copy of Warp?

- a. ____ November
- b. ____ December
- c. ____ January
- d. ____ February
- e. ____ March
- f. ____ April
- g. ____ Can't remember

Have you installed it yet? Yes ____ No ____ (please go to last question)

4. On a scale of 1-5, with 5 being "very satisfied," what is your satisfaction level with Warp ____

5. What convinced you to purchase Warp?

- a. ____ TV advertising
 - ____ The "smiling faces" commercial
 - ____ The Italian Nuns commercials
- b. ____ Print advertising
- c. ____ Radio advertising
- d. ____ Computer media reviews
- e. ____ News media reports
- f. ____ Word of mouth
- g. ____ Already decided to buy it
- h. ____ Other
- i. ____ Can't remember

Please tell us about yourself (check all that apply):

- a. Which best describes your copy of OS/2 Professional?
 - ____ Subscription copy
 - ____ Bought on newstand
 - ____ Borrowed from associate
 - ____ Other
- b. Are you a corporate user of OS/2? Yes ____ No ____
- c. Are you a home user of OS/2? Yes ____ No ____

Please fax your completed survey to (301) 770-1720



You Bring Out The Microsoft In Me

BY JERRY POURNELLE

I have just come from a Microsoft Win95 Conference. Sure, it was pitched to make us love Win95, and while they didn't mention Warp you can bet the Microsoft troops were aware of it. The question is, will Win95 beat out OS/2?

In the home, quite possibly. There's a good reason why Microsoft is delaying the Win95 launch. They're working on compatibility with legacy hardware—older systems—some no longer supported by their manufacturers.

Microsoft believes that if Win95 doesn't work, customers will blame Microsoft no matter the reason. Moreover, users aren't going to buy all new software. They'll expect everything they have—software and hardware, regardless of age—to work properly, and if it doesn't they'll take Win95 back to where they bought it.

In other words, Microsoft has thought through the implications of consumer marketing. It's not clear IBM has done the same.

Meanwhile, IBM has released the new OS/2 with built-in WIN-OS/2. I haven't seen it yet. It may or may not be significant that the product is for sale, but no reviewer I know got an early copy. I'd guess that IBM was unhappy about the problems with early reviews of Warp and decided to put out the new OS/2 more quietly—thus punishing IBM's friends and those trying to be objective as well as its enemies. So it goes.

One supposes there were beta copies, but I don't know who has them. Once again, contrast that with Microsoft, which has distributed beta copies of Win95 to a lot of people—including press—and set up a pretty good system for collecting bug reports. I can personally testify that they have taken some of those bug reports quite seriously.

When Win95 does come out it will be one of the most thoroughly tested products around, and part of that testing is to

make sure it works with all the popular software, games, and multimedia software around.

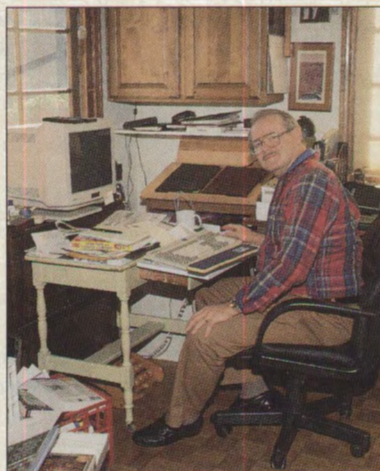
Meanwhile, OS/2 remains the best way to learn Internet surfing. I had a weird interaction between my system configuration, US Robotics modem, and the UltiMail Lite program that comes with the Warp BonusPak, but downloading the latest automatic updates seems to have fixed the problem. I don't know if my bug reports had anything to do with that fix. If you have Windows running, what fixes mail even better is Eudora, a wonderful multisystem mail handler that's happy with

straight Internet mail as well as mail from MCI and other Internet services. If you haven't tried Eudora, there's a shareware version. I'm using the full commercial version and it's worth the money. It takes some mucking around to get Eudora and Windows/Warp running together properly, but you'll get it, and you'll like it when you do.

Warp has given the world a preview. Get Warp up and running, and access to the World Wide Web is both easy and intuitive. But the result has been to bring the Internet to its knees as millions of users access the same facilities at the same time. Now think what will happen when every K-12 classroom logs on. Then imagine a few years from now when laptops will cost \$250, complete with modem. Every motivated high school student will want to log on daily for homework help.

The answer is Internet access software that's aware of what kind of machine and operating system you're running. I don't know how much of that kind of smarts Microsoft is building into Win95, but I do know they're aware of the problem. I hope IBM is thinking harder.

We do live in interesting times. ♦





BackupWiz™

file systems are supported and Extended Attributes, Long File Names, System files, and the Workplace Shell are backed up. You can even restore your entire OS/2 boot volume from tape!

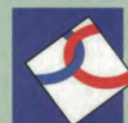
Ease of use is another of OS/2 BackupWiz's strong points. A simple, character oriented menu interface and command line operation are provided. OS/2 BackupWiz comes with support for most 1/4", 4mm (DAT), and 8mm tape devices. BackupWiz can also backup to other hard drives, file servers, minis/mainframes via TCP/IP, and removable drives including Bernoulli, Syquest, diskette, and magneto optical. There is even a version of OS/2 BackupWiz that supports many of the automatic tape changer mechanisms. Any SCSI host adapter that has an ADD driver can be used with OS/2 BackupWiz.

PCX also works hard to keep you satisfied after the sale with outstanding customer support. Being a small and aggressive company means that we can respond to your needs that much quicker.

OS/2 BackupWiz is priced at \$149 (autochanger version \$399). PCX also has a competitive upgrade program where you can purchase OS/2 BackupWiz for just \$49 by sending in an eligible competing product. We offer a 30 day money back guarantee to protect you in case OS/2 BackupWiz does not work for you! Call our toll free number and order today!



**Available
and Ready™**
for OS/2



**Available
and Ready™**
for LAN Server



PortaTape™

from 250 megabytes to 10 gigabytes. Offering backup speeds from 6 to over 18 megabytes per minute when using a high speed, bidirectional printer port, units in the PortaTape series are priced from \$995.

Members of the PortaTape series utilize a range of SCSI tape drives including 1/4 inch, 4mm, and 8 mm mounted in low profile external enclosures. Connection to the host system is via the system's parallel printer port, which may be utilized concurrently with tape drive operation. A copy of OS/2 BackupWiz

is included with each PortaTape.

PCX also markets a complete line of standard SCSI tape backup units ranging in capacity from 250mB to over 10gB. Available in both internal and external models, these units are priced from \$550. For very large backup needs, PCX offers robotic tape loader mechanisms from 48gB to over 1 terabyte.

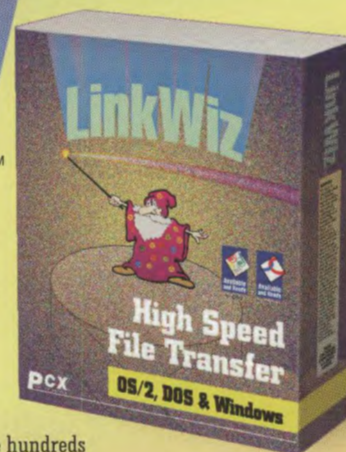
LinkWiz™ transfers files between OS/2 and/or DOS/Windows systems, over parallel cable, at 5 megabytes per minute – several times faster than any other file transfer utility.

Now... transfer files at up to 5 megabytes per minute between OS/2 and OS/2, or OS/2 and DOS/Windows, or DOS/Windows and DOS/Windows, or OS/2 and UNIX, or DOS/Windows and UNIX.

If you have lots of time on your hands, stay with your old transfer utility. But... if you want *warp speed* file transfers of large production size files and directories, then LinkWiz™ is for you! LinkWiz was developed to unleash the power of OS/2.

- Installs and runs in only minutes. ■ Intuitive operation allows anyone to make simple or massive *warp speed* data transfer between systems. ■ Special parallel and serial transfer cables are included.
 - Supports Presentation Manager, long file names, extended attributes and blindingly fast 32 bit I/O. ■ Clone hundreds of other OS/2 systems from a single "seed" OS/2 system.
 - DOS/Windows and OS/2 version list price is \$149.
- Call about our competitive upgrade offer.

If you are ready for a next generation *warp speed* performance file transfer utility... try LinkWiz now! Call or fax your order today!



FOR MORE INFORMATION OR TO ORDER CALL:

1-800-800-4PCX

PCX

3525 Del Mar Heights Road, Suite 313, San Diego, CA 92130
(619) 259-9797 • Fax: (619) 481-6474



Shipping is non-refundable. No cancellations on special order items. 20% restocking fee on hardware refunds within 30 days. No refunds or exchanges after 30 days. Prices subject to change.

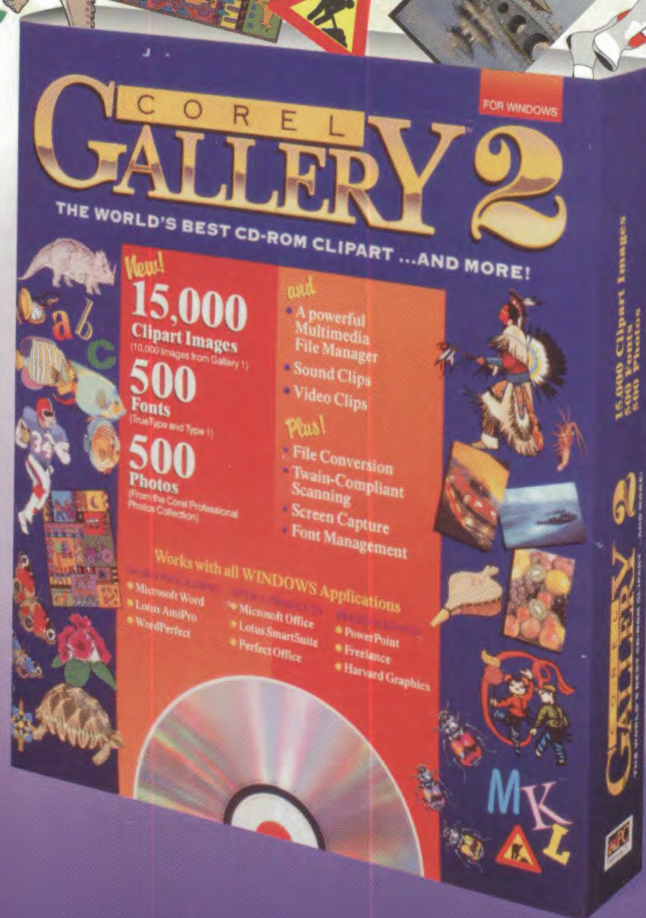
For more information circle #123





New!

- 15,000 Clipart images
- 500 Fonts
- 500 Photos
- A powerful multimedia file manager
- 75 Sound clips
- 10 Video clips



WORKS WITH ALL WINDOWS APPLICATIONS

WORD PROCESSING

- Microsoft Word
- Lotus AmiPro
- WordPerfect

OFFICE PRODUCTS

- Microsoft Office
- Lotus SmartSuite
- Perfect Office

PRESENTATIONS

- PowerPoint
- Freelance
- Harvard Graphics

**500
Photos**

**15,000
Clipart Images**

(5,000 new images plus 10,000 images from GALLERY 1)

**500
Fonts**

OS/2[™] WARP

Corel GALLERY 2 for Windows is compatible with WIN OS/2 under OS/2 WARP.

ASAP

ASAP SOFTWARE EXPRESS, INC. TM

1-800-248-2727

\$63⁹⁹*

Special pricing valid through April 28, 1995.

*US\$ plus applicable taxes.

For more information circle #5

COREL

Call now for faxed literature!
1-613-728-0826 ext. 3080
Document #1055

KUR-0101